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Guest Editorial

Dr. Sun Yat-sen and the Republic of China

OCTOBER 10, 1945, will mark the thirty-fourth anniversary of the Republic of China. The founding of the republic in 1911 was largely due to the leadership of Sun Yat-sen, the famed revolutionist and "father of his country". The liberation of China from the corrupt Manchu conquerors changed the destiny of a fifth of the earth's people, a people who have just engaged in nine years of war to bring to full realization the dream of Sun Yat-sen.

Hundreds of communities in the United States will hold "China Friendship Day" ceremonies on October 10 in celebration of China's Independence Day.

Sun Yat-sen, whose name appropriately means "Sun's Immortal One", led a dangerous and exciting life in laying the secret plans which finally freed the people of China from the yoke of the Manchus. For eighteen years he was banished from his own country and in constant danger of assassination by Manchu agents.

Because he could look at China's political and economic problems with western eyes, Dr. Sun was the first to see the necessity of a political revolution. The revolution that he began had three basic aims; national independence, progressive realization of democracy, and a rising level of living conditions for the masses. These are still the aims of the Chinese people today.

Dr. Sun mapped the construction of a new China in three stages. The first, military operations to weld the country into a nation and break the ground for the second period, that of instruction of the people in the principles of the revolution and the republic. Then, after this preparation, would come constitutional government.

Sun Yat-sen was born in 1866 in a village of Kwangtung, just two years after the bitterly fought Taiping Rebellion had ended. The rebellion had been directed mainly against the Manchu rulers and what they represented. During his young boyhood, Sun Yat-sen heard a great deal of discussion about this rebellion. Undoubtedly it was during this period that he absorbed the first seed of revolution which was to bear such rich fruit in later years.

At the age of thirteen, Sun Yat-sen arrived in Honolulu to pay an extended visit to his older brother who had emigrated to Hawaii many years before. For three years

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EDITOR'S NOTE—China has won our admiration for the gallant way in which for nine long years she fought a cruel foe whose highly mechanized army was comparable in every way to the one that over ran practically all of Europe in a matter of a few months. She is of especial interest to doctors for the way she has taken to Western Medicine in the last few decades, and because her first president was a doctor.

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he attended school conducted by the Bishop of the Anglican Church, and when he left to return to China he carried with him the second prize in English Grammar, an English Bible and a habit of reading it, and an insight into Western ways and ideas. He spent only one year in his native village before moving on to Hongkong "by request", having disgraced his father and incurred the wrath of village councillors by the deliberate breaking of an idol's finger in the local temple—an act to symbolize his irritation at the backwardness of China.

Sun Yat-sen attended a series of schools in Hongkong, became a Christian, and in 1892 was the first graduate of the new British Medical College which had opened in 1885. Armed with a medical degree and with a growing conviction that China's ills could be cured only through revolution, Dr. Sun decided he must win the sympathy of the English and Americans. In 1896 he went to London, but soon after his arrival was kidnapped by Manchu agents and concealed in the Legation. A former teacher, Sir James Cantile, received news of the kidnapping through a porter in the Legation

The International Peace Hospital in Northwest China is built into caves along a mountainside of that barren land. It was founded with Canadian and American Relief Funds and is now supported by the China Aid Council of United China Relief. (Picture courtesy of United China Relief).

building. Sir James immediately appealed to British officials. Newspapers printed the story, thus forcing Dr. Sun's release. Immediately he found himself an international celebrity.

Dr. Sun continued his work. He traveled the world over, making what was virtually a house-to-house canvass of Chinese overseas. Wherever he found his countrymen he won converts and contributions to the cause of China's freedom. Contact was established between groups overseas and groups within China. There were repeated attempts at risings—in vain. Then came October 10, 1911, and success. Ironically, the news of this success came to Dr. Sun while reading a newspaper in Denver! That newspaper story was his first word of the rising that was to fan out from the valley

of the Yangtze, overthrow the Manchu throne, and result in the founding of the Republic. A month later, in London, Dr. Sun received an invitation to head the new government. When he returned triumphantly to his native land a young officer named Chiang Kai-shek, who had fought in the revolution, became his aide. Today Chiang Kai-shek is generalissimo of China's armies, and President of the Republic.

Sun Yat-sen became first provisional president of the Republic in January of 1912 at Nanking. The next month the formal abdication of the Manchus was issued. Not long after that Dr. Sun, in the hope of furthering national unity, resigned the Presidency in favor of Yuan Shih-kai, who had commanded the imperial forces that had opposed the revolutionists. Dr. Sun, the least vain of men, thought Yuan's executive ability and prestige were needed by the fledgling state. Yuan subsequently conceived the idea of setting himself up as emperor. And, after his death, chaos was spread over China by rival war lords.

China Blood Bank, developed in America by the American Bureau for Medical Aid to China, is shown in actual operation in China. Blood from several donors is accepted simultaneously while other Chinese soldiers await their turn. (Picture courtesy of United China Relief).

Undaunted, Dr. Sun carried on with his program for China. He established his revolutionary government in Canton, and was chosen as its President. In 1925, while in Peking seeking to achieve unity among rival political factions, he died of cancer at the age of 59.

Dr. Sun left to his countrymen an exhortation to carry on toward the goal he had set for China. It is his Will, of which the following is a translation:

"For forty years I have devoted myself to the cause of the people's revolution with but one end in view, the elevation of China to a position of freedom and equality

among the nations. My experiences during those forty years have firmly convinced me that to attain this goal we must bring about a thorough awakening of our own people and ally ourselves in a common struggle with those peoples of the world who treat us on the basis of equality.

"The work of the Revolution is not yet done. Let all our comrades follow my 'Plans for National Reconstruction,' 'Fundamentals of National Reconstruction,' 'Three Principles of the People,' and the 'Manifesto' issued by the First National Convention of our Party, and strive on earnestly for their consummation. Above all, our recent declarations in favor of the convocation of a National Convention and the abolition of unequal treaties should be carried into effect with the least possible delay. This is my heartfelt charge to you."

First civil wars and then the Japanese invasion and occupation have delayed the great program of making China a truly free and modern nation. In November the best minds of modern China are scheduled to meet and write a constitution for China that would bring to all the people the liberties and opportunities for progress which Dr. Sun envisioned.

RUSSELL WHELAN.

EDITOR'S NOTE—Mr. Whelan is the author of "The Flying Tigers" and a frequent contributor to magazines. He is press and radio publicity director for United China Relief.

Floral Eponym (30)

EUPATORIUM

MITHRADATES VI. *Eupator.*

Eupatorium is a genus of some 600 species. To it belong such common Fall-blooming herbs as Joe-Pye Weed, Hemp, Agrominy, Mist Flower, and Thoroughwort or Boneset. The name, Eupatorium, commemorates an ancient king of Pontus, said by Pliny to have employed one of his group of plants in medicine.

Mithradates VI. *Eupator,* called the Great, succeeded in driving the Romans out of Asia Minor, but was finally conquered by Pompey. Ancient authorities have invested Mithradates with a halo of romance, making of him a sort of princely John Bunyan. His courage, his bodily strength and size, his skill in the use of weapons, in riding and in the chase, his speed on foot, his capacity for eating and drinking, his penetrating intellect and his mastery of 22 languages are celebrated to a degree which is almost incredible. He spent much of his time in practicing magic.

RECENT ADVANCES IN DRUG THERAPY*

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Today drug therapy occupies a foremost place in the thoughts of not only members of the medical profession but members of allied professions and even other professions which are not directly related to medicine. Everyone concerned with health, whether it be on the civilian front or fighting fronts in foreign lands, is conscious of the need for the preservation of health and the rapid cure of disease. The war has precipitated much of this interest; it has also precipitated interest in new fields of medical science. The interest has been so great that we are encouraged to think that from now on the use of drugs will never be relegated to a comparatively minor position; rather it will be recognized as an intricate part of medical treatment and worthy of continuous study by researcher and medical practitioner.

The use of drugs has been regarded by many as a means of satisfying the patient's request to relieve his pain or to cure some fever or infection; too often it has been regarded as a means of doing something to impress the patient when the diagnosis was not certain. Some have also administered drugs in the honest belief that their diagnosis was accurate and the medicine of value, whereas both were lacking. Fortunately for such physicians and their patients, the body usually gets well in spite of what is done to it. The members of this audience will recognize that drugs commonly were abused years ago, abused because medical knowledge had not progressed to the horizons which have been opened up in the last ten years. Today, however, the use of any well known and potent drug can and should be reserved for specific conditions, to be used only when indicated. Furthermore, it should be used in a manner which is most effective for the patient's own good. If this was not true, there would be no need for special tests such as the determination of drug levels in the blood when powerful drugs such as the sulfonamides and thiocyanates are used.

There are few truly effective drugs that can be called safe for all patients and it is necessary to realize not only the beneficial effects of drugs but the harmful possibilities that may occur. Today the physician who intelligently uses drugs must know pharmacology and toxicology. If he cannot master the details of all the drugs that are thrown before him, he should reserve his choice for a few compounds, learning to use them well. It is not necessary for him to be familiar with all the digitalis preparations and barbituric acid preparations. One, two, or three of each group will tide him over most of his cases, regardless of his specialty. He should also know where to go for information when he is urged to use some preparation with which he is not familiar but which is described in a more enthusiastic fashion than seems warranted on the basis of available facts.

Most important of all, he should realize that the use of drugs, like all other medical acts, is only part of the general practice of prevention and treatment of disease. There isn't any one technic or procedure which will permit a trained medical man to cure all disease or prevent all disease. If there were, there would be no need for medical schools and the extensive curricula which they now maintain. Out of this war there seems to be emerging a general realization of this fact and it seems safe to predict that when the war is over all mankind will benefit. For example, until recently emphasis was placed solely on the use of drugs in the treatment of malaria. Now we realize that rehabilitation can play a very important part and in some instances produce more dramatic responses than any chemical compound that has yet been used. Of course, rehabilitation has its limitations and this is the important thing to remember in all diseases—all forms of treatment have well-defined limitations.

This evening I do not wish to devote my statements entirely to new advances in drugs and offer them one after the other. Later, I shall emphasize a few of these, but, in view of the excellent work which is reported time after time from this vicinity, I feel it is unnecessary to spend too much time on penicillin, the sulfonamides, thiouracil and other drugs which are foremost in everyone's mind. Instead I would like to use these advances as a nucleus

*Read at the regular meeting of the Richmond Academy of Medicine, January 23, 1945.

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to draw attention to several problems concerning which learned men such as the members of this audience can provide much assistance. To provide a background, I would like to draw attention briefly to the improvements that have occurred in medical sciences in the past few years. From this background we should be able to see what constitute advances in drug therapy, the scope of drug therapy and its trend, and things that need to be done.

Many will remember that during the Crimean War the French lost 8 men from disease for every 1 killed in battle, while the Russians lost 20 to 1. The common causes for this disaster were cholera, typhus, dysentery, and infections. In the Spanish-American War 7 soldiers were lost for every 1 who died in battle. In the Civil War 50 per cent of the wounded died, whereas in World War I 6 to 12 per cent of the wounded died, while in World War II the figure has been only 3 per cent. The annual death rate overseas during Warld War I was 12.8 for each one thousand men abroad; in World War II, some time ago, the figure was 0.5 per thousand men. In World War I, 20 to 30 per cent of soldiers who contracted pneumonia died; in World War II only 1 per cent. In World War I, of soldiers who contracted meningococcic meningitis, 37 to 39 per cent died, while in this war only 3 to 5 per cent have been victims.

As a result of the general improvements in the prevention and treatment of disease countless lives have been saved. Some idea of this saving can be estimated by comparing the deaths caused by disease at the beginning and end of a given period. For example, in 1900 pneumonia, diphtheria, typhoid, meningitis and smallpox caused per 100,000 population, 150, 40, 31, 7 and 2 deaths, respectively; in 1940, the deaths were 25, 1, 1, 0.5 and 0.01, respectively per 100,000 population. This improvement has resulted in the saving of 250,000 lives from five diseases seen in a forty year period. Just picture the saving when all diseases have been taken into account!

Another indication of our improved health is the increased life expectancy. In 1900 the parents of a newborn child could expect their offspring to live for 49.2 years, but in 1940 the child had a life expectancy of 63.3 years, and in 1942, 64.2 years.

Of course, much of this improvement is due to better hygiene, effective educational health plans, improved hospital facilities and many other things that comprise medical care. Into the picture, however, has crept one subject that is playing an increasingly important role, the subject of the use of drugs for the prevention, diagnosis and treatment of disease. Serums and vaccines, sulfonamides, penicillin, pain relievers, blood substitutes, antimalarials, hormones and vitamins are just a few of the names which the physician hears from the time he is a student until he has retired from active practice. If he is conscientious and does not wish to practice with inadequate knowledge, he continues his studies throughout his entire career. Regardless of his specialty, he cannot divorce himself from the use of drugs.

But there remains much to be done: The best possible drugs have probably not been developed; there is still considerable illness. For example, during 1942, 2 to 3 per cent of the entire population was ill each day; 10 per cent became a hospital bed patient during the year; there was a hospital entry every 2½ seconds, an operation every 5½ seconds, a birth each 20 seconds. In 1943 there was a hospital entry every 2 seconds. The number of hospital entries in 1943 was 15,300,000, an increase of 3,000,000 over 1942; the number of births, 1,900,000, an increase of 250,000.

Industrial losses bear special significance during war. Some idea of the annual industrial loss is gained by examining figures for 1942: Every 20 minutes one worker was killed; every 5 minutes one worker was disabled. The loss represented $4,000,000,000.00, or the closing of 1,750 factories each employing 1,000 men. Drugs alone would not prevent all this enormous wastage but they could be of much aid in the presence of infections, respiratory and cardiac failure and other conditions which are susceptible to modification by potent therapeutic agents.

All of this adds up to an annual break-up of 500,000 families because of the death of husband or wife and the creation of 200,000 widows and widowers with 500,000 dependents under eighteen. If for no other reason, this latter fact should provide sufficient emotional appeal to urge on everyone in a search for better medical aids and for employment of only sound medical principles. To meet the demands of modern medicine requires enormous

amounts of drugs. At the moment, large quantities are needed by the armed forces and for shipment to allied and occupied countries but some idea of production may be gained from a few well-known substances: In the month of January, 1944, there was produced 750,000 pounds of acetylsalicylic acid, 23,000 pounds niacinamide, 22,000 pounds phenobarbital, 650,000 pounds sulfonamides, and 12,500,000,000 units of penicillin. During 1942 there was produced 5,434,000 pounds of sulfonamide; in 1943, 9,860,000 pounds.

Penicillin affords a good example of the growth of production which occurs when a new drug is developed and found satisfactory for general release. Production may be tabulated as follows:

1943:		
January-May	400,000,000	units
June	425,000,000	"
July	762,000,000	"
August	904,000,000	"
December	9,000,000,000	"
1944:		
January	12,500,000,000	"
February	18,200,000,000	"
March	35,000,000,000	"
April	70,000,000,000	"
May	100,000,000,000	"
December	200,000,000,000	"

Mass production permits economic savings for drug purchasers. For example, the cost of penicillin has been reduced from $20.00 per 100,000 units to about $2.00, depending on the manufacturer. Thiamine has been reduced from $300.00 per gram to 20 cents; riboflavin, from $7.50 to 28 cents; vitamin C from $2.00 to three cents. Thus, as in other industries, when production goes up, cost usually comes down, the reduction being reflected in the selling price of an article.

To achieve worthwhile drugs and mass production involves expenditure of material and trained scientific effort that is impossible to estimate accurately in terms of actual dollars. Apart from the contributions of the scientific staff, we know that drug houses, foundations, medical schools and other research centers are spending each year many million dollars, possibly fifty million dollars. Even this figure is comparatively small, however, to what will be spent in the next few years. The government alone through its O.S.R.D. contracts has provided enormous sums for research. The end is not in sight.

With this background one can understand the tremendous strides that have been made in the practice of medicine. Even the most skeptical lay individual should be convinced that this represents better medicine than some of his old time superstitions—such as curing chicken pox by waiting until the chickens have gone to roost, then putting the sufferer in the door of the chicken house and chasing out the chickens over him; or when one felt a chill coming on, acting as if he were going to jump into bed but instead dive under the bed so the chill would pass by; or curing a cold by standing in front of a mirror and sneezing in the hope that the cold would enter the reflection in the mirror; or curing sores by placing on them the hand of a dead person.

At the same time, this background affords an opportunity to review lightly but appreciatively some of the newer drugs and treatment measures. Unfortunately, many advances that have been made must be held in secrecy as they have been done under contract with the O.S.R.D. This includes not only the development of new drugs, but technics of administration and general medical care. Nevertheless, one can review the status of sulfonamides, vitamins, penicillin, thiouracil and other preparations, confident in the knowledge that progress with these agents is being reflected even at the moment in general medical practice.

In the last few months there have been no new sulfonamides developed and offered in interstate commerce, so at the moment the medical profession has at its command sulfanilamide, sulfapyridine, sulfathiazole, sulfadiazine, sulfamerazine, sulfapyrazine, sulfaguanidine, and succinylsulfathiazole, and the sodium salts of all except sulfanilamide, sulfasuxidine and sulfaguanidine. Sulfamerazine and sulfapyrazine are more recent additions to the sulfonamide group, sulfamerazine being used in the treatment of pneumococcal, streptococcal, meningococcal and gonococcal infections. Approximately one-half the amount of sulfamerazine as is required of sulfadiazine will produce comparable blood concentrations. Sulfamerazine is more rapidly and completely absorbed from the gastro-intestinal tract than is sulfadiazine, but it is excreted more slowly. Thus, it is given in smaller amounts and less frequently. It penetrates cerebrospinal pleural and peritoneal fluids. The concentration of free drug in cerebrospinal fluid is approximately 50 per cent of that in

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serum. Sulfapyrazine appears to have a low order of toxicity in experimental animals. It is absorbed and excreted rather slowly, and high blood levels are not obtained with single large oral doses. The drug is secreted in the cerebrospinal fluid and reaches concentrations of about one-half to two-thirds of blood level within 12 hours following intravenous administration of sulfapyrazine sodium. It is secreted also in other body fluids. It is probably as effective as sulfadiazine in the treatment of pneumococcal, hemolytic streptococcal and B. coli infections. Further, it appears to be effective against Shigella paradysenteriae, and in the presence of meningococcic meningitis.

Another interesting development of sulfonamide therapy is the recent work which has been done to show that these drugs may be used quite satisfactorily for prophylactic purposes. For example, they may be used prophylactically for dysentery and for upper respiratory infections. The latter problem has been studied rather extensively in the armed forces, but its application in civilian practice remains to be more fully evaluated.

Penicillin has been widely discussed and undoubtedly the members of this audience are quite familiar with details of the action of this drug and its uses. I should like to pause only long enough to mention the possibilities of penicillin in the treatment of syphilis and gonorrhea, possibly bacterial endocarditis, and to point out that there is a substance known as penicillin-X which is effective in single, comparatively small doses against gonorrheal infections. Another interesting item is the recent convention held in London on the standardization of penicillin, at which representatives of England, France, Canada and the United States attended. It would be of decided advantage to develop standards which have international application, as penicillin, like the sulfonamides, will remain an important part of the medical armamentarium unless a better substitute is found.

One of the most interesting topics of recent months is the use of thiouracil in the treatment of thyrotoxicosis. Thiouracil and thiourea have been found to exert a depressing influence primarily on the functional activity of the thyroid and hence on the basal metabolic rate. The mode of action of these drugs appears to be an interference with the enzymatic synthesis of thyroid hormone. The exact site of block is still not known, but it seems to be established that the thyroid is rendered incapable of utilizing iodine for these processes. Whether or not thiouracil will prove to be a satisfactory substitute for surgical treatment of toxic goiter remains for further investigation. However, the drug promises to be of much value in cases in which operation is inadvisable or contraindicated. Thiouracil is not without toxic possibilities and the danger of agranulocytosis should always be borne in mind. Other toxic manifestations include skin eruptions, fever, arthralgia and jaundice.

There have been no new vitamins offered in the past few months with specific claims for clinical use. On the other hand, there has been sufficient work done to show that several vitamins may be synthesized in the intestinal tract, a finding which is causing some individuals to wonder about the present claims for vitamin deficiencies and need for vitamin supplements. Obviously, vitamin nutrition is a field which is still much in need of considerable investigation and clarification.

The control of air-borne infection has been studied for many years and yet it is only recently that there has come promise of effective agents. There are now employed such practices as spraying walls and floors with fine oil, installation of ultraviolet lamps, and dispersion of glycol vapors. The use of oil spray on floors has been found to affect materially the spread of dust and bacteria-bearing particles. The use of ultraviolet irradiation in experimental set-ups has been shown to have some value, but the value is limited, as has been definitely shown by the Council on Physical Medicine of the American Medical Association. The use of glycol vapors, on the other hand, offers much hope and, if effective machinery can be made so that the vapors may be dispersed evenly and completely throughout rooms, there is a possibility that some of our air-borne infections may be controlled for the first time before the responsible bacteria strike the victim.

The use of serum and plasma as blood substitutes has been life-saving to wounded soldiers. This subject has been discussed extensively and is probably familiar to all members of this audience, but I would like to emphasize a new product derived from blood, a product known as albumin and which when dried is found to be about as effective as serum, and yet occupies only about 1/25 of the space needed for

serum and plasma. This is of tremendous importance in shipping when large quantities must be transferred over long distances. Like serum and plasma, albumin does not need to be typed before administered as it represents pooled lots. In the field of blood and blood substitutes and derivatives are two compounds which promise to be of considerable value in the control of bleeding: One is thrombin which is applied locally; another is a substance developed by E. J. Cohn and known as fibrin foam. This substance when dry has a sponge-like appearance. Prior to use it is dissolved in saline solution. It is quite effective in controlling hemorrhage and promises to be of considerable aid, especially in brain surgery.

One cannot leave the question of blood without making reference to substances which are now available to prolong bleeding time. Heparin has been known for sometime, and yet only recently has come into fairly extensive use. On the other hand, a group of compounds known as dicoumarin compounds are comparatively new developments and yet are being fairly extensively used even now.

In the field of serums and vaccines perhaps the three things which have excited as much interest as any other biologic in the last year or so are yellow fever vaccines, influenza vaccines and immune serum globulin. Yellow fever vaccines have demonstrated their effectiveness and are widely employed by the armed forces. "Flu" vaccines have not yet been made generally available, but there has been sufficient work done to indicate that they have considerably more value than any influenza vaccine that has yet been developed. Even though there is a supply available it doesn't seem practical to use this substance in a wholesale manner such as is done with smallpox vaccine, diphtheria toxoids, etc., and probably the vaccine that is now available will continue to be reserved for special circumstances. During the year a scheme was set up whereby immune serum globulin, the substance which is left over when blood is processed for shipment to the armed forces, could be made available throughout the country for the prevention of measles. The research leading to the development of this product was carried out by the Plasma Fractionation Laboratory of the Harvard Medical School under Professor E. J. Cohn. Pharmaceutical manufacturers have agreed, since the blood is donated by the people, to make the product available through health departments at actual cost, the plan being a cooperative one with the American Red Cross.

One could go on to considerable length discussing other topics, such as the development of synthetic endocrine substances, the work that is being done on anti-hypertensive agents, the development of new pain relievers such as Demerol, the treatment of "athlete's foot" and the value of germicidal soaps. However, time limits such discussion. Further, the purpose of this presentation as announced in the beginning was to provide a background for certain questions which are being posed daily by patients in almost every practitioner's office. The medical man today must be prepared to practice not only good medicine but to answer questions frequently on topics which are almost outside his field of interest. Failure to answer these questions may risk loss of confidence on the part of the patient, while, on the other hand, supplying a satisfactory answer will increase confidence and good will. From my own experience with lay groups and groups consisting of medical men and members of allied professions, I have learned that the following questions are most frequently asked by the general population. At the same time these questions, with a little study, are among the easiest to answer, and this evening I hope that I have provided some information to assist in the answering of the following queries:

Does the medical profession possess effective drugs? What are some?

Does it know how to use them?

Does it have opportunity to keep up to date with medical advances?

Does it make use of the opportunities?

How effective are modern drugs?

Are there enough of them for everyone who needs them?

Is there need for better substitutes?

What is being done to obtain better drugs?

What constitutes medical research?

Who participates?

When new discoveries are made, are they kept hidden? If not, are they carefully worked out before being passed on?

Is there any protection against use by those who are not qualified to apply the new discoveries?

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Does the public benefit from new discoveries? How?

Who pays for this work?

Members of the medical profession must be prepared to answer these questions; conduct research; apply intelligently the discoveries of research; know where to obtain authentic information when in doubt; and recognize personal limitations with a view to either correcting them or abiding by them. It is no disgrace to admit ignorance of new developments as no one can hope to keep up with all aspects of medical progress. It is to one's credit to admit he doesn't know, especially when he follows the admission with "But I'll soon find out what it's all about." After all, when human lives are at stake, there are involved responsibilities which are more important than one's ego. Fortunately, the medical profession is composed of men whose education and contacts with the human side of life promote full realization of the importance of truthfulness and adequate knowledge; if it did not, then the medical profession would not occupy its present place in the scientific world and in community life.

Typhus Control in Yugoslavia.

As part of its duties under the International Sanitary Conventions of 1944, the United Nations Relief and Rehabilitation Administration has assumed leadership in the program for control of typhus in Yugoslavia.

Twenty UNRRA doctors, nurses, sanitary engineers and other technicians are now at work as members of the health staff of the UNRRA Yugoslav mission. The takeover of the control program by UNRRA was completed July 1.

The United States of America Typhus Commission formerly led the control program in Yugoslavia with UNRRA personnel assisting. The Commission signed an agreement with Marshall Tito last January setting up the necessary arrangements for the work.. Mass inoculation of the entire population of Bosnia and Herzegovina is well under way and half a million people have been inoculated to halt the spread of endemic typhus in that area. DDT powder and vaccine were shipped to the area by plane so as to expedite the program. With the arrival of the U. S. A. Typhus Commission last winter, modern methods of epidemic control were introduced. DDT insecticide powder is applied with hand or electric blow guns. Hundreds of people can be disinfected in a short space of time. No undressing, bathing, and subsequent disinfection of wearing apparel is necessary.

Dr. W. A. Sawyer, Director of the Health Division, expressed a hope that UNRRA, in carrying forward the work so well begun by the United States of America Typhus Commission, in cooperation with the health officers of the Yugoslav Government, would be able to rid Yugoslav of louse-born typhus and so preclude the possibility of future outbreaks.

Easier Access to Public Buildings Urged for Handicapped Persons.

A recently inaugurated campaign by the National Society for Crippled Children and Adults to construct new public buildings with ground level entries, elevators between floors and the elimination of all unnecessary steps should help to "decrease the number of accidents among the handicapped as well as greatly increase their ability to perform business activities and seek pleasure with greater frequency and ease," says the August 18 issue of *The Journal of the American Medical Association.*

"This society," *The Journal* says, "also urges the remodeling of existing buildings with long flights of stairs, to provide ground level entries, elevators, ramps and other practicable measures aimed at the elimination or amelioration of impediments to ready access. Patients with heart disease, crippling illnesses, missing limbs or other disorders of locomotion form an increasing proportion of the population, both because of the war and because of the lengthened average age."

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THE NON-SURGICAL THERAPY OF EPILEPSY*

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In this presentation we use the word "epilepsy" to include all chronically recurrent convulsions, whatever the etiology, with the exception of those cases which are amenable to surgery, those which are based on systemic lesions such as pancreatic or cardiac disease, and those which are manifestations of hysteria. In the literal sense of the word, cures in any case of epilepsy, other than by surgical procedures, are questionable. Therefore, we are compelled to direct our therapeutic efforts towards relieving as many of the symptoms as is possible. In order to institute such measures, we must recognize all the symptoms of epilepsy. We have divided these symptoms into several general groups, the first, but not necessarily the most important group, being comprised of the convulsion and its immediate complications. With many patients it is remarkable how little stress is placed on the seizures. In fact, it seems that the family suffers from the convulsions, while the patient suffers from his personality reaction and society's attitude towards this disease. Whereas he may average only one seizure a year, and that occur in his sleep, this often creates more or less constant anxiety and may result in mental and emotional disturbances of severe degree. Equally as serious, and by far more difficult to treat, are the symptoms of the disease as suffered by society itself. A great number of epileptics who are well able to support themselves are handled unnecessarily through charity. Untreated or poorly treated epileptics also are responsible for some of our dangerour automobile drivers as well as behavior problem children, criminals and other anti-social persons. Society also suffers from the steady addition of more epileptics through improper control of certain families. It is obvious that this is too great a burden for the individual physician and requires assistance from special investigative and therapeutic clinics, various medical societies, lay rehabilitation groups and society in general.

*Read at the annual meeting of the Medical Society of Virginia in Richmond, October 23-25, 1944.

Before treatment is begun, all diagnostic studies should be completed. Otherwise, a certain percentage will not return for completion of studies once the convulsions cease. If there is sufficient intelligence, we insist that the patient keep a diary recording the number of seizures, the exact time at which they occur, a subjective and objective description of the pre-convulsive, convulsive and post-convulsive periods, a description of any variation of medicine, and a description of anything unusual which happened prior to the seizure. From the very beginning, we attempt to encourage the patient and his family and to make them realize that they have someone who is interested and available at any time for any problem, whether or not related to epilepsy. We also emphasize that patience must be maintained, since it may require a year or even more before the best drug or combination of drugs are found. We frankly tell the patient our diagnosis except in rare instances, and particularly avoid the use of words like "spasms", "fainting spells"", and the like. Cooperation has been much better when the facts were presented early. When any medication is prescribed, we emphasize the danger of the patient missing a single dose. Knowledge of possible status epilepticus is a potent reminder. In the beginning, it must be remembered that a patient may be having a great number of minor seizures, and that these may make him forget to take his medicine at the proper time. Therefore, a member of the family should check this until it is certain that the patient is clear enough to be trusted with the medication. On the first visit, the family should be told how to treat the single seizure, how to observe such, and when to call the doctor. At varying intervals, the progress of the patient should be checked by an electroencephalogram.

Phenobarbital and sodium dilantin are the drugs most commonly used in the treatment of the convulsions. Other drugs used less frequently but quite successfully at times are mebaral, sodium bromide,

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glutamic acid, ergotamine tartrate, caffeine, and benzedrine sulfate. Other measures used at times are the ketogenic diet, low protein diet, low salt intake, and dehydration.

Fortunately the cost of medicine is not a serious problem in treatment of epilepsy. The average monthly cost does not exceed $3.00, except when using glutamic acid which may cost as much as $20.00 a month.

The action of these drugs is not clearly understood. Several have a depressant effect which helps reduce the number of seizures by rendering the patient less sensitive to external stimuli. Phenobarbital apparently has a selective effect on the motor cortex, slowing up the electrical activity in this area.

After the medication to be used has been selected, the question of what dose to give arises. In general, all should be started at a low level, and gradually built up as high as is indicated. If the seizures are frequent, it may be necessary to maintain a subtoxic level. As a rule, therapy is more effective if the dose is spread over the day in divided doses. If the patient has his seizures at any special time, for example while asleep, the dose may be given on retiring. In patients giving such a history, it must be remembered that they may be having numerous minor seizures during the day time. The presence or absence of these should be determined by electroencephalography, and the treatment varied accordingly.

In children, when phenobarbital or sodium dilantin is prescribed, it is preferable to start with gr. ½, and over a period of several weeks increase until 3-4 doses are taken daily. The same is true in the adult except that the dose is generally started at gr. 1½. In prescribing mebaral, which is a less toxic barbital derivative, the dose is regulated so that gr. 3 are equivalent to gr. 1½ of sodium dilantin or phenobarbital. The usual dose of bromide is gr. 5-15 three times daily. On occasion a stimulant is preferred, and, of these, caffeine (gr. 1-3 daily) or benzedrine sulfate (5-25 mgm. daily) are the drugs of choice. Stimulants should not be given later than 2:00 P. M. The administration of glutamic acid is started at gr. 7½ three times daily, being increased daily until the pH of the urine is maintained as near 5.0 as is possible. It is preferable to start this drug in the hospital, or under the close supervision of a physician. At first the pH of the urine must be determined daily with nitrazine paper, and the patient or an appropriate member of his family must be taught how to read the test. After the pH is relatively stable, the testing may be done twice a week.

Each patient has his own manner of responding to the individual drugs. In general, phenobarbital or sodium dilantin or combinations of these two usually control the grand mal attacks if any drug will. Sodium dilantin has an additional advantage in often increasing the patient's sense of well-being. If the only type of seizure complained of is the petit mal variety, phenobarbital and sodium dilantin may have no effect or even an adverse effect on the symptoms. In the past, bromides have seemed to control petit mal attacks better than any other drug. Recently, however, glutamic acid has been introduced and appears to be particularly effective against these seizures in children. We have not tried this on a sufficient number of patients to reach definite conclusions. Certainly several of the patients have not been helped by it, and at least one complained more on the treatment than previously. However, in at least half the instances, the patient and families have been quite enthusiastic.

For example, in June, 1944, a 15 year old girl was admitted to the hospital, having had grand mal seizures once or twice a month since the age of ten. Her development up to the age of eight had been slow, but then she became noticeably worse. She was very sluggish, inattentive, and disinterested, particularly in her appearance. She had never combed her hair. She was very difficult to get up in the morning. She was doing very poorly in school, being in the 7th grade at the time she was seen. In 1942 her mental age was 7 years and 10 months, and her I.Q., 62. Since 1942 she had been taking sodium dilantin gr. 1½ four times daily. In June, 1944, her mental age was 7 years 4 months, and her I.Q. was 51. An electroencephalogram done on June 25, 1944, revealed the presence of very irregular cortical electrical activity, featuring waves with great variation in frequency and voltage. In addition, there were bursts of cerebral dysrhythmia characteristic of petit mal variants which occurred once every 18 seconds on an average, occupying a total of 24 per cent of the record. Her dilantin being kept at the same dose, she was placed on glutamic acid. On October 17, 1944, she was taking gr. 60 of glutamic acid

after each meal. On this occasion, the electroencephalogram in general was of much lower voltage and, in many areas, was within normal limits. No true bursts of the petit mal variant type were present. The parents felt that there had been a remarkable improvement in her illness, since she was much more pleasant and easier to handle. She was passing all her work in high school, and learning things with greater ease. She was much more alert, even becoming critical of her family because they are not as energetic early in the morning as she is. She had taken much more interest in her appearance. Her mental age on this occasion was 8 years, her I. Q. being 55. She had had two major seizures.

If the attacks feature visceral or vasomotor symptoms, it may be worthwhile to add ergotamine tartrate in small doses (1 mgm. three times daily). Children presenting behavior problems and showing cerebral dysrhythmia on the electroencephalogram may respond favorably to benzedrine sulfate.

Any of these drugs may be toxic, the symptoms usually appearing within the first few weeks. With phenobarbital, the most common ill effect is sluggishness. The patient may also become irritable, ataxic, or psychotic. Skin rashes may complicate therapy with phenobarbital, dilantin, or bromides. Sodium dilantin features among its toxic effects gastro-intestinal upsets, diplopia, hyperplasia of the gums, tremors, vertigo and psychoses. The use of bromides is becoming less frequent because of its unpredictability. If caffeine and benzedrine sulfate are given later than 2:00 P. M., the patient may not be able to sleep at night. Sodium dilantin as well as phenobarbital may at times increase petit mal attacks. The major disadvantage of glutamic acid is the fact that large doses may be necessary, sometimes amounting to 15 large tablets three times a day.

The ketogenic diet primarily is used in an effort to control petit mal attacks in children, but its effectiveness is reduced by the fact that it is so unpleasant and so difficult to maintain. Glutamic acid was introduced in an effort to replace this means of therapy. There is some clinical and experimental evidence which shows that an excessive intake of fluids increases the incidence of convulsions. On this basis, it has been suggested that low salt intake and dehydration be carried out. As a rule, we urge our patients to drink as little water as possible, and to avoid an excess of salt on their food, but we do not carry this to an extreme.

In general, all physical disorders of the patient should be corrected. It has been suggested that these patients should take exercises which increase the ability of the lung to expand. They should avoid excesses of all natures, and absolutely refrain from alcoholic beverages.

Because of the wide variety of psychogenic disturbances present in these patients, we cannot go into any detail regarding psychotherapy. We feel strongly that our patients are helped by joining the American Epilepsy League. This is an organization the purposes of which are to educate the individual epileptic and society in general, to actively assist in rehabilitation and employment of epileptics, and to aid research in the disease. On joining the organization, the patient is sent a book which is written on all phases of epilepsy in words understandable by a non-professional person.

Usually when we have established our diagnosis and discussed the same with the patient, we make a special effort to attempt to correct any false ideas which are present. This discussion usually comprises statements regarding the frequency of epilepsy, the abililty to maintain regular employment, the relatively little chance of being institutionalized because of development of mental disease, the unwarranted attitude of shame, and the general prognosis. We try to discuss the general subject of epilepsy with them as much as time permits. We urge the patient to lead as normal a life as is possible, with maximal education and employment for his ability. As personality defects arise, they must be handled individually.

The therapy of epilepsy, to be of maximal benefit to the patient, must include education of the patient's local society group, as well as society in general. Every effort should be made to train the untrained epileptic for employment, and assist all who are capable in obtaining employment. After employment the patients should be supervised at regular intervals in order to maintain the best possible employer-employee relationship. This can best be handled through a social service group, who also can assist the patient in solving the problems which arise in his local society.

Finally, since this is a disease not only of a single person but also of all society, therepeutic measures

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must be applied directly to society. Among the most important of these are institutionalization of the hopeless cases, sterilization of hereditary cases, prevention of car driving by epileptics, and laws definitely protecting employers of epileptics.

As has been stated, the proper treatment of epilepsy includes all possible efforts of individual physicians, medical and lay organizations, and society in general. Certainly the individual physician will do all in his power to help these persons; medical organizations are assisting in advancement of knowledge on the subject; a few scattered rehabilitation societies are helping as much as they can. Until society in general can see fit to contribute for research more than twenty cents per year per epileptic, it can hardly be considered to be doing its share.

DISCUSSION

DR. JOHN M. MEREDITH, Richmond: I am very glad to have heard Dr. Newbill's paper on the non-surgical treatment of epilepsy because, after all, the majority of such patients, particularly the younger group, are not of the surgical type. All neuro-surgeons tend to stress the idea that so many patients with convulsions have surgical lesions. It is, however, very true, particularly in children, that the great majority with convulsions do not have surgical lesions at all. With Dr. Newbill's very thorough review in mind, I am sure the importance of non-surgical treatment is apparent. We do feel that adults, 35 years of age and older, who develop convulsions for the first time, are probably harboring a mass lesion of the brain and should be investigated by means of an air injection. Also, all children with convulsions sooner or later should have an encephalogram. I am sure this is done by Dr. Newbill and Dr. Leigh.

The electro-encephalogram is coming to the fore and has been received with great interest by the neuro-psychiatrists. We feel that all children, as well as adults with convulsions, should have an electro-encephalogram as well as an air injection. It may show a definite focus, and it is of aid in therapy. It is of great value to know if a child has abnormal waves in the electro-encephalogram and particularly, if the waves are slow, it is thought that glutamic acid is more beneficial in patients with petit mal.

There are certain general measures that seem rather minor, but when taken together do help these individuals a great deal in carrying out their normal daily life. A few years ago the advisability of dehydration in epilepsy was discussed a great deal, and Dr. Temple Fay of Philadelphia recommended that the daily fluid intake should be reduced to 300 to 500 c.c. Most students of epilepsy today feel that that is a little drastic and confine the dehydration to a lesser degree of from 800 to 1,000 c.c. for 24 hours. In winter, this is not so very difficult, but in hot weather it is rather a hardship on the patient to carry out even that restriction. In women and adolescent girls who have seizures usually at their menstrual periods it is a good idea to reduce the fluid intake for a few days before menstruation. We usually advocate moderate constant dehydration in those individuals also.

In regard to drugs, dilantin is usually valuable and often is effective when luminal fails to control the seizures. The whole problem in epilepsy is to rule out a surgical lesion by an air injection and then to use these various measures outlined by the essayists today.

It has been held in various clinics that it is always best to view the seizure itself and not take the word of anyone else for it, because it may be hysterical or non-existent. It is of real importance then to see the seizure for one's self and determine whether or not it is hysterical before drug therapy, electro-encephalography or encephalography is recommended.

DR. DAVID C. WILSON, University: I certainly enjoyed Dr. Newbill's paper. His thorough and concise presentation is to be commended.

Dr. Newbill is now in charge of all our patients with seizures; and he is making quite an effort to develop a clinic of service, shall we say, for these individuals. This service is growing so fast that I do not know just what is going to happen. It looks as if it is going to push everything else out of the hospital. I do think, though, that it is absolutely essential to organize centers for the care of persons with seizures. I think undoubtedly we should have some organized place in Richmond where they can go, and I think there should be several others in the State. Certainly this organized clinic in Charlottesville cannot hope to take care of the tremendous numbers of people that have these conditions.

The reason for the great increase in numbers is mainly the attention given to the patient and the use of the electro-encephalogram. We see many people who have fainting attacks, who have so-called hysterical spells, who have sudden weakness of the knees—things that are passed by usually or given some other diagnosis. Usually they have petit mal seizures, and when this is brought out by the electro-encephalogram they can be helped.

I should like to ask Dr. Newbill to talk a little more about the handling of glutamic acid in the home—how it can be done or whether it can be done. I should also like to ask him to talk a little more about varying the glutamic acid and dilantin to suit the patient. That is one of the valuable results of studying people in seizures, because each one needs a different dose.

The employment factor is one we have discussed before. That is, getting these people adjusted so that they can lead normal lives, because undoubtedly the fact that they cannot lead normal lives is what leads to personality disorders. So I should like to ask Dr. Newbill to make a few suggestions for better adjustment for them along that line.

DR. BASIL B. JONES, Richmond: I enjoyed Dr. Newbill's paper very much, but was rather surprised that no mention was made of allergy. I want to mention briefly two cases which are possibly illustrative of a cause

of petit mal. One was a child about a year or a year and a half old when I first saw him. He had a history of repeated momentary spells of unconsciousness. In going over the history there was a fairly typical picture of milk allergy, involving the grandmother, the mother, an uncle who had convulsions from milk and the patient. I changed the child from cow's milk to mullsoy and after that it had only one more seizure. I saw this child recently—about a year after the elimination of milk, and was told that he had had no more convulsions.

The other child has a congenital hemiplegia and a definite history of brief convulsions. In addition to the convulsions he was suffering with severe constipation and colic. He had numerous changes in diet: ascorbic acid for orange juice, mullsoy, evaporated milk, goat's milk, lactic acid milk, and so forth. He had continued to be constipated and frequently had momentary convulsions. Finally the child was put on fresh milk, and for some reason difficult to explain, the bowel function was corrected. After the bowel function became normal, the convulsions stopped.

This child is also one of a series of cases of meningococcic septicemia which I shall report shortly in the *Virginia Medical Monthly*, and comment there will be made about the cessation of his petit mal which, apparently, was caused by the dietary change.

After experiences such as these it would seem that the possibility of gastro-intestinal allergy should be investigated carefully in any case of convulsive seizures, particularly petit mal, because the elimination of the offending food might cure the patient.

DR. NEWBILL, closing the discussion: In regard to allergy, we omitted this problem purposely and felt that it should be included under the sub-heading of General Physical Defects. All such physiological and pathological alterations from the normal should be investigated, and corrected if possible.

Dr. Meredith mentioned the observation of a seizure in a hospital, and also mentioned that this may be hysterical. One must always remember that patients with epilepsy can also have and do have hysterical seizures. For this reason, the presence of an hysterical attack does not rule out epilepsy.

In regard to the frequency of epilepsy, this disease is of approximately the same incidence as diabetes mellitus, or active tuberculosis. It has been shown by well established and accepted statistics that one-half or more of one per cent of the general population have convulsions. In this State alone, that would mean that there are approximately 12,500 epileptics of whom we have seen in the vicinity of 1,000 to 1,500 at the University Hospital during the past five years.

In discussing the glutamic acid therapy in the home, I omitted giving the details during the talk because of the time involved. I should also mention that it is important to vary the dose of dilantin for the individual patient, a single dose being necessary in some cases, whereas subtoxic levels must be maintained in others.

In regard to the questions about employment of the epileptics, there appear to be too many factors involved to discuss this at the moment, but the problem will be discussed in more detail in the paper as printed.

New Books.

The following are recent acquisitions to the Library of the Medical College of Virginia, and are available to our readers under usual library rules:

Army Air Forces—Physiology of flight.
Baker—The first woman doctor, the story of Elizabeth Blackwell.
Binger—The doctor's job. (The Norton Medical Award.)
Bridges—Food and beverage analyses.
Conant—Military manual of clinical mycology.
Corner—Ourselves unborn.
Farrington—Railroads at war.
Ford—Diseases of the nervous system in infancy, childhood and adolescence.
Gallagher—Lady in waiting.
Hamblen—Endocrinology of woman.
Hertzler—Ventures in science of a country surgeon.
Hill—A textbook of oral pathology.
Hilleboe & Morgan—Mass radiography of the chest.
Kolmer—Penicillin therapy.
Kraemer—Advances in colloid science.
Lichtwitz—Pathology and therapy of rheumatic fever.
Lindner—Rebel without a cause . . . the hypoanalysis of a criminal psychopath.
Maher—The reticulo-endothelial system in sulfonamide activity.
Molloy—Pride's way. (Novel).
National Research Council—Manual of Tropical Medicine.
Pickard & Buley—The midwest pioneer, his ills, cures and doctors.
Puffer—Familial susceptibility to tuberculosis.
Riggs—Intelligent living.
Schering Corporation—Sex endocrinology.
Simpson—Tempo and mode in evaluation.
Simpson—Fever therapy, abstracts and discussions of papers presented at the Int. Conf.
Stephenson—Exploring in physics.
Waksman—Microbial and antibiotic substances.
Wendt—Science for the world of tomorrow.
Wodehouse—Hayfever plants. (Chronica Botanica.)

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DICUMAROL THERAPY AND PROTHROMBIN TIME*

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Three quite interesting discoveries have been presented to the medical profession by the Wisconsin Alumni Research Foundation in the past twenty years. The discovery of Vitamin D and ultra-violet irradiation by Dr. Steenbock has been accepted in the field of medicine and in the field of nutrition throughout the world. The discovery of the catalytic action of copper in building hemoglobin by Professor Hart has been an important addition in the treatment of secondary anemia. Another discovery by Professor Hart, namely, the stabilization of iodine, has been extremely useful in the prevention of goiter in animals. Its usefulness has been extended to table salt for humans. A fourth discovery, by Dr. K. P. Link of the University of Wisconsin, in which the action of Dicumarol delays blood coagulation and prolongs prothrombin time is the subject of this presentation.

For many years medical interest had been centered on coagulants, both topically and for internal use. Calcium therapy was used internally and in some cases was of distinct benefit. Viper venom and other agents were used topically. Thrombin is a new coagulant recently introduced. The opposite condition was of little interest then, though a useful anticoagulant had a much wider field of application.

HEPARIN: Previous to the discovery of Dicumarol, it was observed in 1916 that certain tissue extracts have a capacity of prolonging blood coagulation time. In 1933 a crystalline salt, now known as Heparin, was successfully prepared from liver extract. The action of Heparin is more or less immediate and of short duration. It is given intravenously by the intermittent dosage plan. Heparin can only be given parenterally and its cost is rather high. The discovery of Dicumarol marks a considerable addition to our knowledge and use of the anticoagulants.

DICUMAROL: Dr. Link of the University of Wisconsin discovered and synthesized Dicumarol after being called in consultation where spoiled sweet clover disease among cattle had become somewhat common. From eating spoiled sweet clover hay cattle would show considerable hemorrhage under the skin. The urine would at times be almost entirely blood. From bumping against the side of the stall hematomas of considerable size would develop. Death from a generalized hemorrhage would result.

After isolation of Dicumarol as the offending substance, the product was tried on other animals and, later, on human beings, and was found to have an anti-coagulant effect similar to Heparin. It had, however, several advantages. It could be given orally, whereas Heparin must be given intravenously. Its cost is low, thus eliminating the financial barrier to its continuous use in those conditions that require anticoagulant therapy over a period of time. Dicumarol acts slowly and its effect recedes slowly. Evidence is now conclusive, from both experimental and clinical observations, that coagulation of the blood of both man and animals can be considerably impaired without interference with normal life.

OCCURRENCE OF THROMBOSIS: Some of the conditions where anticoagulants have been successfully used are: thrombophlebitis, coronary thrombosis pulmonary embolism, and operations where there is a possibility of thrombo-embolization. Certain abdominal operations are more likely to be followed by thrombosis and pulmonary embolism than others. These include resection of the stomach, exploratory laparatomy for inoperable cancer, colostomy, enterostomy, operation for ruptured appendix, cholecystectomy and intestinal resection. Repair of umbilical femoral or inguinal hernia, hysterectomy, operations on the brain and spinal cord have frequently been followed by thrombotic phenomena. About 93 per cent of the postoperative fatalities due to pulmonary embolism are in patients over forty years of age. "The number of deaths that occur after operation for malignant lesions is out of all proportion to the number of such operations. In contrast, death from pulmonary embolism almost never occurs following thyroidectomy". (Barnes, S. R., Mayo Clinic.) Further, as Edgar Allen has suggested, "It is challenging to contemplate the effect which would be produced on morbidity and mortality rates among the aging by the *reduction* of the tendency of the blood toward thrombosis by one-third or more".

*Presented before the Richmond Academy of Medicine, April 10, 1945.

The anticoagulants, of which Heparin and Dicumarol are the most important clinically, are used to prolong the coagulation time of the blood. One, Dicumarol, delays or prevents the formation of prothrombin, the other Heparin, inhibits the activity of the prothrombin in the blood stream and may inhibit the action of thromboplastin. The formation of thrombin is therefore lessened, or may be altogether prevented.

While clotting is a necessary function of blood, to postpone or delay its action in certain conditions is of considerable value. Frequently it is important to prolong the clotting time as early as possible, for the formation of a *single* clot presupposes the formation of others. In this emergency an anticoagulant that is immediately effective becomes a necessity. Heparin acts immediately (or within a few hours) and is therefore used for its prompt effect. Dicumarol may be used to secure prolonged effect or an effect taking place within 12-24 hours. Its effect is not manifested for at least ten hours regardless of the size of the dose. The effect is not noticeable for 24 hours if whole plasma is used for prothrombin determination, but is noticeable in 10 hours with diluted plasma (12.5 per cent).

PROTHROMBIN DETERMINATION IMPORTANT: Dicumarol should not be given unless a daily prothrombin time is made. At present, daily estimations are made, but it is believed that, as experience is being gained, it may be made every second day. Prothrombin time is taken with whole plasma, and with diluted plasma (25 per cent and 12.5 per cent). The coagulation time of whole blood is used to determine the effective dose of Heparin. With Dicumarol, prothrombin time as determined with whole or diluted plasma is the method of choice. The use of both whole and diluted plasma at each determination gives such additional information to the clinician as to warrant its adoption as routine procedure by the laboratory.

The recommended dosage of Dicumarol is 300 mgm. the first day, 200 mgm. the second day and the daily maintenance level determined subsequent days by the prothrombin time and the progress of the case. The dosage varies with the body weight and the prothrombin time. Salts for intravenous use are not stable.

EXTENDED USE OF DICUMAROL: Since the discovery of Dicumarol, it has been tried in a number of conditions. Its greatest use has been in those conditions where thrombosis occurs due to a changing condition in the blood stream. Phlebothrombosis, thrombophlebitis, thrombosis in different organs and as a prophylactic in post-operative and post-partum cases. It is now being used in subacute bacterial endocarditis with penicillin, and in multiple sclerosis. Its successful use in burns and massive tissue destruction has been reported. The use of Dicumarol in the latter conditions appears sound because clots formed on the surface tend to delay healing since the formation of the clot puts the tissue covered by the clot outside of the healing system. The pressure bandage is used to prevent clot. In addition, the anticoagulant action of Dicumarol therapy has a distinct advantage. Dicumarol has also been used in frost bite and diabetes. The evidence was sufficiently satisfactory to warrant its continuance in this field. There is no doubt but that the field of usefulness of anticoagulant therapy will be extended as experience with the drug widens.

SALICYLATES AND XANTHINES: In the study of anticoagulants, it soon became evident that there were a number of drugs that influenced Dicumarol action. The first studied was the salicylates. It was noted that the salicylate addict and those who used a daily high salicylate intake had a prolonged prothrombin time. To impose a full dosage of Dicumarol on this group would unduly prolong the prothrombin time and cause hemorrhage. Another group of drugs studied was the xanthines. This group has the opposite effect—they shorten the prothrombin time and thus the caffeine addict may require higher dosage of Dicumarol. It is therefore suggested that, where possible, the intake of the salicylates and the xanthines be eliminated during the period of Dicumarol therapy. The salicylates would, of course, enhance the action of Dicumarol; the xanthines would retard its action. Dilute plasma prothrombin determinations indicate the effect of these groups of drugs, whereas whole plasma determination may not be adequately sensitive.

A third group requiring our attention is those cases of heart failure receiving digitalis. Whether the thrombosis is due to the slowing of the blood stream in these cardiac conditions, or due to some factor of the digitalis, is not known.

EFFECTIVE CONTROL IMPORTANT: There has been considerable discussion regarding Dicumarol and mention has been made in the literature that it is dangerous. It is a potent anticoagulant, but is not

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hazardous in the hands of the careful physician. Fatalities recorded during the experimental period were not due to failure of the drug, but to failure of control. Control is quite simple. Maintenance of the prothrombin time at about twice the normal is safe and efficient. This generally requires a lower level dosage after the initial dosage.

TWO COAGULANTS CAN NEUTRALIZE DICUMAROL EFFECT: In those cases where the prothrombin time has become unduly extended, or where hemorrhage occurs, two remedies are effective. The first used was *fresh* whole blood transfusion. This restored promptly the prothrombin content of the blood and controlled the bleeding. Another and equally effective antidote is by the use of massive doses of Vitamin K. Given intravenously 60 or more mgms. of Vitamin K will control the hemorrhage in a few hours. It seems that this dose of K lessens the action of Dicumarol on the liver so that a safe level is maintained.

PROTHROMBIN TIME: Since the work of Quick of Marquette Medical School, there has been considerable study of thromboplastins and changes in method of prothrombin determination. Since thromboplastin is very susceptible to temperature change and other influences, it requires great care in preparation and use in determining prothrombin time. The Quick method using whole plasma and the Shapiro modification with diluted plasma, are now the generally accepted methods. When both whole and diluted plasma tests are made, three additional points of information become available. These are:

(1) Whole plasma prothrombin changes are evident in about 24 hours, whereas diluted plasma shows changes in about 8-10 hours.

(2) When the diluted plasma prothrombin time shows a day-to-day reduction without appreciable changes in the whole plasma prothrombin time, thrombosis may be expected. The dosage of Dicumarol should be increased.

(3) When the whole plasma prothrombin time shows a day-to-day lengthening of the prothrombin time without a parallel increase in the dilute curve, hemorrhage may be expected. The Dicumarol should be withdrawn.

Satisfactory thromboplastin is now on the market for prothrombin determinations. A statement of the normal figure plus a dilution curve of activity should accompany every preparation of thromboplastin. In this way it is simple to determine the significance of the figures obtained in a test.

We consider a thromboplastin of good activity one which reveals a reading for normal whole plasma of 17 to 20 seconds and diluted plasma 37 to 42 seconds. For Dicumarol therapy we consider double the normal for whole plasma and three times the normal for dilute plasma is well within the safe therapeutic range.

Because of the many factors that lower the activity of a thromboplastin made without technical control, it would seem best to use a thromboplastin that has been properly standardized under the conditions mentioned. If a laboratory desires to prepare its own thromboplastin, it should follow either the Quick or the Shapiro technique and make certain that the activity is in the range mentioned above.

SUMMARY

Dicumarol is a safe anticoagulant. Its therapeutic range is that at which the prothrombin time of whole plasma is prolonged to double, of diluted (12.5 per cent) plasma to about thrice normal. Dicumarol acts slowly and recedes slowly. Its antidotes are fresh blood transfusion and high dosage of Vitamin K. Dicumarol activity can be determined only by its effect upon the prothrombin time.

PENICILLIN IN THE TREATMENT OF PYOGENIC INFECTIONS OF THE SKIN—A REPORT OF FIFTY CASES

R. CAMPBELL MANSON, MAJOR, M.C.,
Army of the United States.*

Under the general group of the pyodermas are included the infections in which the principal etiological agents are staphylococci and streptococci. These infections may be primary in origin, as in impetigo, or secondary to other eruptions, such as secondarily infected trichophytosis pedis. Infections of this type form a high percentage of the admissions to the Army hospitals, due to the fact that irregular bathing habits, trauma, irritations from rough clothing, exposure to oils and greases, and insect bites are prevalent among soldiers.

Penicillin has proven to be effective in the treatment of infections produced by the gonococcus, pneumococcus, staphylococcus aureus, and streptococcus. In a report by the Committee on Chemo-Therapy of the National Research Council, impressive results were obtained in staphyloccocal infections not accompanied by bacteremia. In forty-eight of fifty-five cases of osteomyelitis the lesions either healed completely, or the exudate became free from staphylococci and eventually healed. In a recent report by Major Lyons, sixty-nine of seventy-nine patients with staphylococcal infections without bacteremia showed a favorable response to penicillin therapy. In carbuncles and miscellaneous staphylococcal infections of the skin and subcutaneous tissues, penicillin has proven remarkably effective. In many instances the drug has been employed successfully by means of local application alone, but a consensus of opinion favors the employment of the parenteral route in all but the most superficial cases.

Penicillin therapy was started on our patients as a rule after other methods such as local wet dressings, ointments, and other routine procedures had failed. However, during the period in which penicillin was administered, the patient was usually continued on some type of wet dressings when necessary for his comfort. The average dosage received in each case was one million units given in twenty-five thousand unit doses every three hours intramuscularly for five days, or until there was obvious regression of the lesions.

RESULTS OF TREATMENT

In a survey of fifty cases of pyogenic skin infections treated with penicillin in a General Hospital, the cases have been divided into six distinct groups, namely: Sycosis Vulgaris, Impetigo Contagiosa, Impetiginous Dermatitis, Secondarily Infected Trichophytosis Pedis, Generalized Furunculosis, and Miscellaneous Cases.

Group I. Sycosis Vulgaris

In this group of two cases both were due to staphylococcus aureus hemolyticus. One case of fifteen months' duration was cured in thirteen days and discharged to duty. The other case of twenty-one months' duration was unimproved after ninety days' hospitalization.

Group II. Impetigo Contagiosa

Under this group there were eleven cases, all of which showed a positive culture for staphylococcus aureus hemolyticus, three of which were combined with streptococcus hemolyticus. The average duration of the disease was twenty-two days and the average period of hospitalization was thirteen days. There were ten cases cured and one improved as a result of treatment. The one case which was improved only was complicated by severe lymphadenopathy and x-ray therapy was necessary in addition to penicillin. It is also interesting to note that one patient with a severe impetigo of the face and scalp had a generalized psoriasis, which did not improve following penicillin therapy.

Group III. Impetiginous Dermatitis

There were fifteen cases in this group, all showing staphylococcus aureus hemolyticus on cultures, seven of which were combined with streptococcus hemolyticus and one with a trichophyton fungus. The average duration of the disease in this group was fifty-six days. There were thirteen cured and two unimproved. Of the unimproved cases, one was complicated by a severe hyperhidrosis of the hands and feet and the pyogenic infection of these areas showed no response. In the other case the patient had severe fungating granulomatous-like lesions of the face with extensive lymphadenopathy which were diagnosed (by biopsy) as a "severe pyogenic infection". Clinically the lesions resembled a mycotic type of infection although these organisms could not be

*Major Manson's home address is Richmond, Va.

XUM

demonstrated by culture or biopsy. This patient cleared up completely following a short course of potassium iodide and x-ray therapy.

Group IV. Secondarily Infected Trichophytosis Pedis

The four cases in this group showed staphylococcus aureus hemolyticus on cultures, two of which were combined with streptococcus hemolyticus. The average duration of the disease was seventy-five days and the average hospital stay was seventy-seven days. In all of these cases wet dressings and various fungicides were used prior to penicillin therapy. There were three cases cured and one improved. The improved case had trench foot and the repeated infections were primarily due to the "baby skin" which accompanies this condition.

Group V. Generalized Furunculosis

In this group there were fifteen cases which showed staphylococcus aureus hemolyticus on cultures. One of these was combined with streptococcus hemolyticus and another with staphylococcus albus. The average duration of the disease was seventy-eight and one-third days. The average period of hospitalization was twenty-six and one-half days and all cases were cured.

Group VI. Miscellaneous

In the miscellaneous group there was one case of severe infections eczematoid dermatitis, cultures from

	DIAGNOSIS			CAUSATIVE AGENT	DURATION DISEASE	DOSAGE	CONDITION	DURATION HOSP.	NOTES
1.	Sycosis Vulgaris			Staph. Aureus Hemolyticus	21 mos.	1,000,000 U.	Improved	3 mos.	
2.	"	"	"	" " "	15 mos.	"	" Cured	13 days	
AVERAGE:				2 Cases Staph. Aureus Hemolyticus	18 mos.	1,000,000	1 Improved 1 Cured	57½ days	
1.	Impetigo Contagiosa			Staph. Aureus Hemolyticus	3 mos.	1,000,000 U.	Cured	29 days	Gen. psoriasis, no resp. to penicil.
2.	"	"	Face	" " "	2 wks.	"	"	5 days	
3.	"	"	"	" " "	2 wks.	"	"	7 days	
4.	"	"	"	" " "	1 wk.	"	"	15 days	Elev. of Temp. during penicillin
5.	"	"	" St. H. &	" " "	2 wks.	"	"	9 days	
6.	"	"	Scalp	" " "	4 wks.	1,500,000	"	18 days	Elev. of Temp. during penicillin
7.	"	"	Face " "	" " "	3 wks.	1,000,000	"	11 days	
8.	"	"	Neck & Face	" " "	3 wks.	1,500,000	" Improved	16 days	X-ray necessary - lymphadenopathy
9.	"	"	Face	" " "	1 wk.	500,000	" Cured	4 days	
10.	"	"	Face	" " "	10 days	1,000,000	" "	10 days	
11.	"	"	Face " "	" " "	10 days	"	" "	17 days	
AVERAGE:			11 cases of Staph. Aureus Hemolyticus, 3 of which were combined with Strept. Hemolyticus		21½ days	954,545 U. Approx.	10 Cured 1 Imp.	13 days	
1.	Impeticinous Derm.			Staph. Aureus Hemolyticus	2 wks.	1,000,000 U.	Cured	10 days	Had G.C., cured.
2.	"	"		" " "	3 wks.	"	"	26 days	
3.	"	"	Hands & Arms	" " "	10 days	700,000	"	6 days	Lymphadenitis & Lymphangitis
4.	"	"	Hands St. H. &	" " "	6 wks.	1,000,000	"	13 days	
5.	"	"	Hands	" " "	10 days	"	"	16 days	
6.	"	"	Hands " "	" " "	5 days	"	"	16 days	
7.	"	"	Hands " "	" " "	2 mos.	1,500,000	"	22 days	
8.	"	"	Feet, Legs & Arms	" " "	6 wks.	1,000,000	"	15 days	
9.	"	"	Feet & Hands. St. H. &	" " "	1 wk.	"	"	18 days	
10.	"	"	Face & Neck " "	" " "	3 wks.	"	"	17 days	
11.	"	"	Generalized " "	" " "	2 wks.	"	"	7 wks.	
12.	"	"	Feet & Hands " "	" " "	1 yr.	2,000,000	" Unimproved	60 days	Severe hyperhidrosis hands and feet.
13.	"	"	Legs & Ears	" " "	4 mos.	1,000,000	" Cured	1 mo.	X-ray treatment
14.	"	"	Face Trichophyton &	" " "	6 wks.	2,500,000	" Unimproved	72 days	K.I. X-ray treatment
15.	"	"	Generalized	" " "	5 wks.	1,000,000	" Cured	16 days	
AVERAGE:			15 cases of Staph. Aureus Hemolyticus, 7 of which were combined with Strept. Hemolyticus and 1 with Trichophyton.		56 days	1,246,667 U.	13 Cured 2 Unimp.	26 days	
1.	Infection, Feet, Secondary		St. H.&	Staph. Aureus Hemolyticus	1 mo.	1,000,000 U.	Cured	2 mos.	Trench Foot
2.	"	"	"	" " "	6 mos.	800,000	"	70 days	
3.	"	"	" " "	" " "	1 mo.	1,000,000	" Improved	90 days	Trench Foot
4.	"	"	"	" " "	2 mos.	1,500,000	" Cured	38 days	
AVERAGE:			4 cases of Staph. Aureus Hemolyticus, 2 of which were combined with Strept. Hemolyticus		75 days	1,075,000 U.	3 Cured 1 Improved	77 days	
1.	Furunculosis, Generalized			Staph. Aureus Hemolyticus	3 wks.	1,300,000 U.	Cured	1 mo.	
2.	"	"	"	" " "	5 mos.	1,000,000 U.	"	15 days	
3.	"	"		" " "	1 mo.	"	"	32 days	
4.	"	Recurrent, of neck	St. H. &	" " "	3 mos.	"	"	1 mo.	
5.	"	"	"	" " "	1 mo.	"	"	24 days	Patient sensitive to sulfadiazine
6.	"	" buttocks		" " "	7 mos.	"	"	18 days	
7.	"	"	"	" " "	6 mos.	"	"	12 days	
8.	"	"	" St. Albus &	" " "	3 mos.	"	"	3 days	
9.	"	" Axillae, both		" " "	10 days	"	"	16 days	
10.	"	" buttocks		" " "	2 wks.	"	"	11 days	
11.	"	"	"	" " "	2 mos.	"	"	7 days	
12.	"	"	"	" " "	6 mos.	"	"	45 days	
13.	"	"	"	" " "	4 wks.	"	"	60 days	
14.	"	" thighs		" " "	2 wks.	"	"	80 days	350,000 Units on hospital ship
15.	"	Generalized		" " "	40 days	"	"	10 days	
AVERAGE:		15 cases of Staph. Aureus Hemolyticus, 1 of which was combined with Strept. Hemolyticus and 1 with Strept. Albus			78-1/3 days	1,020,000 U.	All Cured	26⅓ days	
1.	Eczematoid Derm., secondarily inf. St. H. & Staph. Aureus Hemolyticus.				30 days	1,000,000 U.	Unimproved	90 days	
1.	Severe bullous impetigo, both hands			Strept. Hemolyticus	1 week	1,000,000 U.	Cured	11 days	
1.	Dermatitis Herpetiformis			Strept. Hemolyticus	3 yrs.	1,000,000 U.	Unimproved	30 days	Sent to duty for 2 wks., recurred

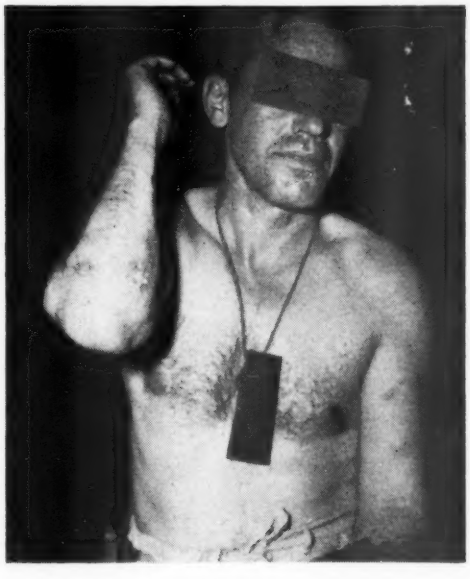
which showed staphylococcus aureus hemolyticus and streptococcus hemolyticus. The duration of the disease was thirty days and there was no improvement following penicillin therapy. The second case was one of severe bullous impetigo of both thighs due to streptococcus hemolyticus of one week duration, which cleared up completely in eleven days under penicillin therapy. The third case in this group on which a questionable diagnosis of dermatitis herpetiformis was made will be reported along with the case reports.

CASE REPORTS

Case I.—This patient had the circinate lesions of impetigo which had been previously treated with ammoniated mercury ointment and other local remedies in our clinic. In view of the slow response to therapy, he was admitted to the hospital on July 1 and received one million units of penicillin. He was discharged on July 8 completely cleared up. Cultures showed staphylococcus aureus hemolyticus.

Case II.—This patient was admitted to the hospital on August 17 complaining of a marked irritation of the face. He stated that about ten days prior to admission, while in the swimming pool, he received a slight abrasion of the face as a result of a scraping on the cement. This was followed in two or three days by a small infected area which gradually spread over the entire front of the face as a severe weeping impetiginous dermatitis. Cultures showed staphylococcus aureus hemolyticus. He received wet dressings of boric acid solution for four days without significant improvement and on August 22 was started on penicillin therapy and was given 1,000,000 units. He was discharged on August 27 completely cured.

Case II



Case I

Case III

Case III.—This patient was admitted to the hospital on April 12 complaining of a marked generalized itching with small pustular lesions over the entire body. He stated the condition began in January 1944 with lesions involving the hands, wrists and forearms, associated with a marked itching. On examination the condition appeared very typical of an infected scabies and this cleared up following

Case IV

Case IV

local treatment. About ten days after admission patient developed an acute vesicular dermatitis of the left foot which responded very slowly to local treatments, including x-ray therapy, and gradually developed as a severe pyogenic infection with ulceration. He was given 800,000 units of penicillin in four days and discharged to duty. Cultures from lesions showed staphylococcus aureus hemolyticus.

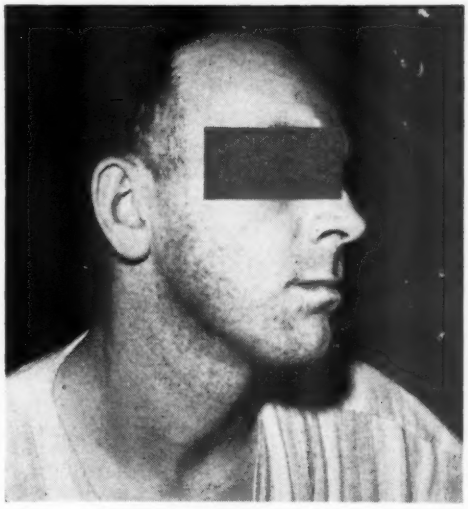
Case IV.—This patient stated that beginning about July 3 he developed an acute vesicular rash between the toes of both feet. He was treated in his dispensary with local remedies, then in a Station Hospital from July 28 to August 24 and subsequently transferred to a General Hospital. The feet at that time showed a marked weeping in-

Case V

petiginous infection between the toes with extensive maceration and bilateral inguinal adenopathy. He was started on penicillin therapy on August 27 and his feet showed marked improvement and cleared up seven days later. Cultures showed staphylococcus aureus hemolyticus.

Case V.—This patient was admitted to the hospital on August 22 complaining of furunculosis of both thighs. The lesions had been present on both buttocks and thighs for about two weeks and were very tender and indurated. He had received prior to admission about 350,000 units of penicillin on the hospital ship and said he was much better. Treatment was continued and patient given an additional 500,000 units. He was discharged on August 30 completely cleared up. Cultures showed staphylococcus aureus hemolyticus.

Case VI.—This patient was admitted to the hospital August 17 for an eruption of the beard region of the face. Patient stated condition started about twenty-two months prior to admission to hospital as an infection of the hair in the beard region with marked itching and burning. He was treated in our clinic for about one month with local remedies and x-ray therapy without improvement. Cultures from lesions showed staphylococcus aureus hemolyticus and penicillin therapy was given without improvement.



Case VI

Case VII

Case VII.—This patient was admitted to the hospital on May 23 complaining of a recurrent dermatitis of the thighs and chest of three years' duration. He had a history of recurrent vesicular lesions of the thighs and chest which seemed to come only in warm weather and disappeared completely during the winter. The lesions often became infected which resulted in marked scar formation. Biopsy of an acute lesion showed pathological findings compatible with a dermatitis herpetiformis or pemphigus. A diagnosis of factitial dermatitis was also suggested in this case, but was disproven by a complete examination by the Neuropsychiatric Department.

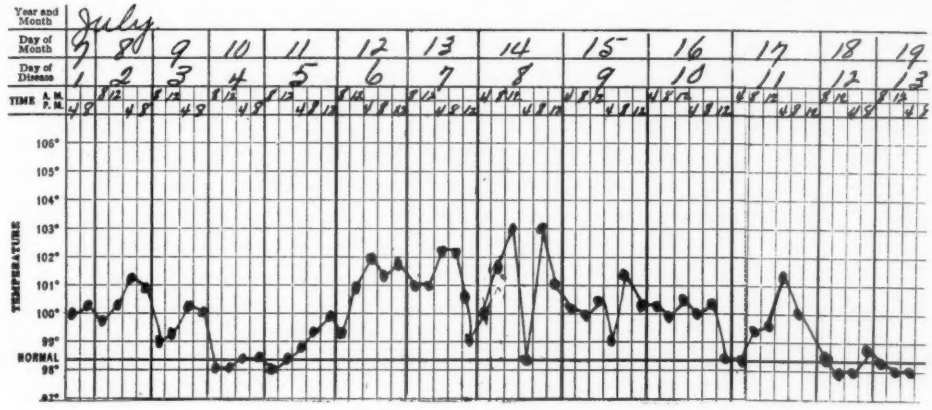


Chart I, Case I

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Cultures showed staphylococcus aureus hemolyticus and patient was given a million units of penicillin. The lesions responded well to this and he was dis-

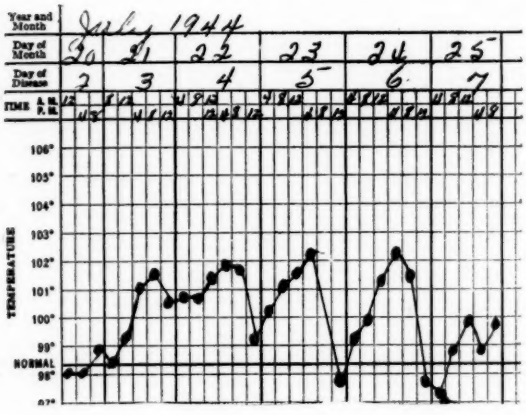

Chart II, Case II

charged to duty on June 12. On July 7 patient was again admitted to the hospital. At that time he had a recurrence of the bullous and deeply ulcerated and infected lesions of both thighs. He was transferred to another hospital, with diagnosis questionable.

TYPES OF REACTIONS

Keefer and others in their series on five hundred cases reported chills and fever, thrombo-phlebitis, urticaria, tenderness with muscle pains and headache as the outstanding complications of penicillin therapy. In this series of fifty cases there were only three reactions, all of which were characterized by chills and fever. These reactions occurred with one brand of penicillin only, and did not occur with penicillin made by other manufacturers.

Case I.—Was admitted to the hospital on July 7 for severe impetigo of his face. Penicillin therapy was started at noon and patient continued to run intermittent temperature elevation during the entire treatment, the temperature subsiding completely following cessation of penicillin therapy.

Case II.—Had a severe impetigo of the face and neck and also ran an elevation of temperature beginning with penicillin therapy, which stopped promptly with the cessation of penicillin.

Case III.—Had a severe impetiginous infection of his scalp and began to run an elevation of temperature within twenty-four hours after the beginning of penicillin therapy, which subsided promptly on cessation of treatment. It is interesting to note in this case that patient had received continuous wet dressings of penicillin for about two weeks prior to admission without improvement.

All three of these cases in which there were reactions got excellent results from penicillin therapy.

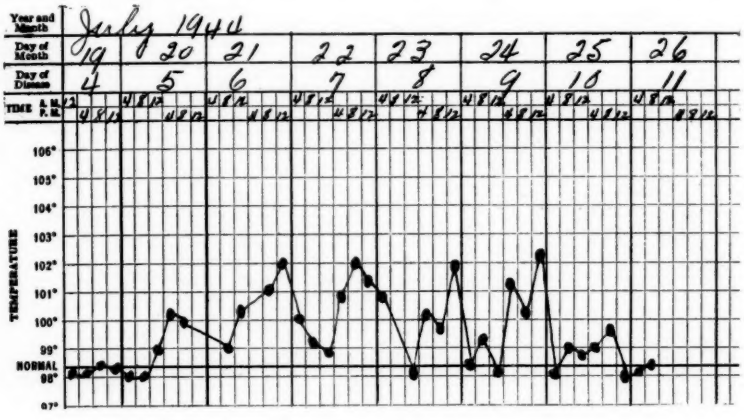

Chart III, Case III

SUMMARY AND CONCLUSION

From the study of fifty cases of pyogenic infections of the skin treated with penicillin the following conclusions are justified. Penicillin is most effective in the treatment of infections of the skin due to the staphylococcus and streptococcus. It is a valuable adjunct to skin therapy but by no means a "cure all". In this group of cases there were forty-three cases cured, three cases improved and four unimproved. These results are by no means

conclusive since, due to the Army status of the patients, it is impossible to conduct any type of organized follow-up of the cases.

Though exact figures can not be given, it may be conservatively stated that many days of hospitalization were saved by the use of penicillin, and, further, that a goodly number of these soldiers who were returned to duty would, without penicillin, have been evacuated to the Zone of Interior.

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Lasker Awards for Fertility Research and Maternal Care.

For the second successive year, two $500 Lasker awards will be given through the Planned Parenthood Federation of America, Inc., for significant contribution to the improvement of maternal health care and for research in human fertility.

The awards will be:

1. To the scientist making the most significant contribution in research in human fertility—either in the control of conception or in the correction of infertility.

2. To the public health service in a state or community for meritorious action in developing a complete program of maternal health care, including child spacing. The individual recipient of the award will be the executive officer most responsible for the development of the program.

The awards will be presented at the Annual Dinner of the Planned Parenthood Federation of America in New York in January 1946. Deadline for submission of entries for the awards will be December 1, 1945. Any individual wishing to qualify for the awards, or to suggest the name of a scientist, physician or public health official who might do so, should address the Medical Committee, Planned Parenthood Federation of America, 501 Madison Ave., New York 22, N. Y.

Fluorescent Light Is Not Harmful.

Does fluorescent light possess harmful qualities not found in other forms of artificial illumination? The Council on Industrial Health of the American Medical Association says "No."

Following an investigation by a joint committee on Industrial Ophthalmology, the Council, through its secretary, C. M. Peterson, M.D., reports in the *A. M. A. Journal* of August 25:

"Fluorescent lighting is not harmful to vision. It should not cause eyestrain if properly installed and used."

It was found that the light from fluorescent lamps resembles daylight more closely than that from tungsten-filament lamps. "This color resemblance to daylight," the Council reports, "is a desirable quality," adding:

"Infra-red energy found in fluorescent lighting as now manufactured produces no known physiologic effect except that due to heating. Fluorescent light generates less heat per candlepower than tungsten lamps.

"Glare occurs in any system of lighting. . . . Excessive light may produce symptoms of eyestrain in susceptible individuals regardless of source. Constitutional factors should be corrected as well as the amount and kind of light."

XUM

TORSION OF THE OMENTUM: TWO CASE REPORTS*

J. G. RAMSAY, M.D., F.A.C.S.,
Washington, North Carolina.

The omentum has been an object of much interest from the days of antiquity. An early illustration of this is found in the comment of a Roman physician who, when called to see a wounded gladiator, found on examination that the omentum was protruding from an abdominal wound. He removed the extruded portion and the patient recovered, but always afterwards complained that he had a sensation of cold over the abdomen. The conclusion reached by the physician was that the omentum kept the abdomen warm. By virtue of its role as guardian of the abdomen the omentum attempts to segregate inflamed intra-abdominal organs and viscera from the general abdominal cavity; and as a result becomes involved with them. Also, like the other intra-abdominal organs, it becomes subject to various disease conditions, such as solid tumors, cysts, inflammatory conditions, tuberculosis, and torsion, the latter being the subject of these case reports.

Torsion of the omentum is of interest chiefly because it is a comparatively rare condition. Seldom is a correct diagnosis made pre-operatively, as the symptoms might fit many acute intra-abdominal lesions. The first and most marked symptom is pain, the onset being either gradual or sudden; then we find tenderness, followed by rigidity, and often nausea and vomiting occur.

The classification suggested by Morris is quite comprehensive for an understanding of torsion and is classified as complete and incomplete. The incomplete represents the chronic recurring varieties which are occasionally evidenced by fibrotic areas and omental balls found during laparotomies. Many vague, recurring abdominal pains might have this variety as their source instead of being due to chronic appendicitis, cholecystitis, and indigestion, as usually supposed.

Each type under the Morris classification would have identical subtypes, each having the same causative factors underlying the condition, the difference being that the incomplete resolves itself but shows evidence clinically and pathologically of what has occurred. The incomplete might become at a later date complete, emphasizing the importance of a thorough examination of the omentum during the course of an abdominal operation.

Only complete torsion with its subtypes will be taken up, after the reference just made relative to the incomplete.

(1) Acute torsion with hernia.
  (a) Hernial.
  (b) Hernial and abdominal combined.
(2) Acute torsion without hernia (purely abdominal).
  (a) Primary or idiopathic (unipolar).
  (b) Secondary (unipolar and bipolar).

By the unipolar it is understood that the structure is fixed at one point only, swinging free like the plumb line. Bipolar would mean that the structure was fixed at two or more points with the intervening part or parts swinging free to be acted upon by outside influences.

Hernial refers to the type found entirely within the sac, while hernial and abdominal combined would mean that type in which not only was torsion present in the sac but extended up into the abdomen.

The primary or idiopathic type without hernia is unipolar and no demonstrable mechanical factor is found. The secondary acute torsion without hernia may be either unipolar or bipolar. An illustration of the unipolar of this type would be a cyst of the omentum swinging free predisposing to torsion, while in the bipolar type any inflammatory condition of an intra-abdominal organ might cause an adhesion of the omentum, and be the predisposing cause.

Torsion with hernia comprises by far the largest group of cases and the torsion usually occurs on the right side due to many factors. Among these might be mentioned that right inguinal hernia is more common than left, that the appendix, gallbladder, duodenal, and gastric ulcers are found on the right side, and that the right side of the omentum is longer than the left. Torsion is found most often in males, usually in middle age, and in those inclined to obesity.

Several factors may be responsible for its production, among which might be mentioned postural

*Read before the Seaboard Medical Association of Virginia and North Carolina at its 49th annual session at Wilson, N. C., December 5-7, 1944.

changes of the body, peristalsis, action of the abdominal muscles, movement in the objects to which the omentum is fixed (such as tumors), hernia, anatomy of the omentum with irregular deposits of fat and the right side longer than the left, tortuosity of the omental veins in comparison with the arteries, trauma to the abdominal wall, coughing and violent exertion.

Though a correct diagnosis probably will not be made, there is seldom doubt of the presence of a surgical abdomen which demands exploration. On section hemorrhagic exudate is first encountered, then the omentum fixed at one or more points usually, though occasionally free, twisted on itself, and its appearance due largely to the amount of interference with its blood supply—that is varying from hyperemia to gangrene. The treatment is of course obvious—resection of the non-viable portions.

Two case records of this condition are cited below, one in conjunction with hernia and one of abdominal torsion without hernia.

The first, Mr. J. T., was admitted to Tayloe Hospital 3/19/44 at 1:20 A. M. with a chief complaint of pain in lower left abdomen. The history of present illness was as follows: He was awakened early the morning of March 18, 1944, with severe colicy pain in the lower left abdomen. He had a bowel movement a short time later but this did not relieve the pain. He consulted his family physician who thought that, by straining, he had torn the opening of a hernia on the left side, and advised him to lie down and take it easy. He was nauseated all day but never vomited. The pain became increasingly severe until he came into the hospital for relief of condition. He stated that for sometime he had had some discomfort in the left lower abdomen and that about five years ago he had a somewhat similar attack which passed off after a few days' rest in bed. He had had a bad cough and cold since March 12. Always suffered with constipation. The hernia on the left side has been present since 1935. Stated that he had a hernia on the right side in childhood but this has never come down since he has been grown. He had had an abscess of the left lower first molar tooth for over a week and this had been draining considerable pus. No. G.U. symptoms. No cardiovascular symptoms.

Physical Examination.—Patient was a well developed and nourished adult white male of 33. He was very pale and appeared to be extremely ill. He lay with knees drawn up as if in considerable pain, and the skin was beaded with cold perspiration. He was breathing rather rapidly. No cyanosis, jaundice or skin eruption was present. Eyes: Pupils equal and reacted normally. Ocular and palpebral conjunctivae were injected and the nares congested. Teeth were in very poor condition. Marked pyorrhea and an abscess of the left first lower molar present. There was a marked postnasal drip, and the pharynx was injected. Chest: Wheezing and coarse rales were heard over the entire lung area, both sides, but no consolidation was found by examination or fluoroscopy. Heart: Normal. Blood pressure 124/80. Abdomen: Slightly distended. No organs nor masses palpable. Patient was somewhat rigid over the entire abdomen, but more so over the left lower abdomen where he was exquisitely tender, so much so that he could hardly bear the weight of the hand on it. There was a hernia present on the left side which came out slightly on straining and which he stated was complete. The right inguinal ring was enlarged.

Admission temperature was 99.3, pulse 98, and respiration 26. The white blood count was 19,600, and urinalysis negative.

Impression: (1) Possible volvulus; acute appendicitis, or diverticulitis; (2) Acute bronchitis.

Operative Notes: Under spinal anesthesia the abdomen was opened through right paramedian incision. Difficulty was encountered in going through as the abdominal wall was unusually thick with fat. After entering the peritoneal cavity it was found that the intestines were adhered together and were adherent to the abdominal wall. With a great deal of difficulty adhesions were dissected free enough to open the incision down to just above the bladder. It was found that there was a great deal of bloody fluid in the abdomen and that this was coming from the left side of the abdomen. Due to adhesions the incision was inadequate and was increased for an inch to the left of the navel. It was then shown that there was a band running from the omentum down to what appeared to be a large sac just over the internal opening of the inguinal canal on the left side. This band appeared to contain blood at the point nearest the omentum and was fibrous at the attachment to the sac. The sac itself had a base about 2 inches broad in every diameter and ap-

XUM

parently contained something which could not be made out; consequently, it was not thought wise to open into this due to the extremely broad base and the condition encountered in the abdomen. The cord was ligated with No. 1 catgut close to the sac and divided. The omentum was then brought up in the wound and was found to be gangrenous for at least half of its extent due to a marked torsion, being twisted on itself at least eight times. Clamps were placed above the place where the omentum had twisted and the omentum resected. Clamps were replaced with 000 chromic catgut ties. Adhesions around the appendix were clamped, divided and ligated, and the appendix removed. The appendix on inspection showed marked injection of the serosa. The remainder of the omentum was then brought down over the intestines and the abdomen closed in layers without drainage. No explanation for the old peritonitis was elicited from the history or from the operative findings.

Following operation, patient's chief difficulty was with his bronchitis. He was put on sulfadiazine and the bronchitis cleared up rapidly. He was discharged from the hospital on the eleventh post-operative day with wound well healed. He was seen ten days ago and there has been no recurrence of the hernia since operation though both inguinal rings are large. The pathological report on the tissue removed was "Torsion of omentum with gangrene—acute periappendicitis".

The second case was S. L., a young girl, who was admitted to Tayloe Hospital 7/11/44 with a chief complaint of "pain in lower right abdomen". She gave the following history: Shortly after waking up that morning she began to be troubled by epigastric pain which by afternoon settled into the lower right abdomen and remained there. She had had two movements during the day, slightly loose but not watery. She usually had one to two movements a day. Had not been nauseated and had not vomited. Had never had any trouble similar to this in the past. No pulmonary, cardiovascular or G.U. symptoms. Appetite and digestion good until this illness. Had been given no laxative.

Physical Examination.—Patient was a well developed and nourished white child of 9 years. There was no dyspnea, cyanosis, jaundice or skin eruption present. The heart and lungs were negative. Abdomen: Normal contour. Considerable adipose tissue present. Patient slightly tender over the left lower abdomen and there was some rebound tenderness from left to right. Patient was exquisitely tender over the right lower abdomen and there was marked rigidity present. No organs or masses palpable.

Admission Temperature was 99.6, pulse 100, and respiration 26. The white blood count was 13,700, and urinalysis negative.

Impression: Acute appendicitis.

Operative Notes: Under general anesthesia the abdomen was opened through a 2 inch McBurney incision. There was a mass felt with the examining finger immediately upon opening the peritoneum. It appeared to be omentum and it was thought to be wrapped around an acute appendix. The mass was brought out of the wound and there was found to be torsion of the omentum involving about 3 inches of the omentum present. There were four distinct twists present and the omentum was gangrenous beyond the twisted portion. There was also present a large amount of dark, free, hemorrhagic fluid in the peritoneal cavity. Clamps were placed on the omentum and this portion resected, hemostasis being secured with 00 chromic catgut ligatures. The appendix was then brought up into the wound, but was found not to be inflamed. This was removed in the usual manner. The ileum was then inspected for a distance of 3 feet from the ileocecal junction and enlarged glands were found in the mesentery. Otherwise, no further pathology was encountered. This was returned to the abdomen and the abdomen closed without drainage.

Post-operative course uneventful, patient leaving hospital on seventh post-operative day.

Pathological report on tissue removed—"Hemorrhagic fatty tissue, compatible with omental infarction. Fibrosis of the appendix."

REFERENCES

Morris, John H.: Torsion of the Omentum, *Arch. Surg.* **24**:40, January, 1932.

Lipsett, Philip J.: Torsion of the Great Omentum: Report of Two Cases, *Annals of Surgery* **114**:1026, December, 1941.

Tayloe Hospital.

CASE REPORT OF MATERNAL DEATH

MATERNAL HEALTH COMMITTEE,
MEDICAL SOCIETY OF VIRGINIA

This is a case of a 15 year old colored primigravida who made her first prenatal visit to a clinic at the time she was six months pregnant. One other visit was made to the clinic a month later. One month following that time she delivered a premature living child at home. A midwife attended the patient postpartum. The course was uneventful until the ninth day, when she began to have fever and pain in her left leg. A physician was called and made a diagnosis of "Milk Leg". Improvement followed sulfathiazole administration.

The patient died on the eighteenth postpartum day, nine days after the onset of illness. A diagnosis of "Pulmonary Embolism" was made by the physician.

This case has been classified by the committee as a preventable obstetrical death.

It is said that one out of every three patients with phlebitis will have a pulmonary embolus and one out of twenty-five will have a fatal pulmonary embolus. The death rate from embolism as a result of deep phlebitis under fifty years of age is very low. If this be true, one would not expect a fatal embolus in this patient fifteen years of age.

In discussing this case, it is not necessary to go into the prevention of Thrombophlebitis in home deliveries. However, attention is called to the importance of frequent examinations of the lower extremities of our obstetrical cases in order to be able to determine early the presence of Thrombophlebitis.

The presence of tenderness in the calf, Homan's sign or tenderness along the course of the vein, any dilated veins or edema with or without pain and temperature is sufficient evidence to institute active treatment.

It has been said that Thrombophlebitis is no longer observed passively but is now accepted as a disease that must be vigorously treated.

We are all familiar with the standard treatment of heat, elevation and bed-rest for six weeks. To this has been added the Sulfonomides with very questionable results. Novocain block of the Lumbar Sympathetics has received favorable comments and has been accepted by many as a rational procedure.

Heparin and Dicumarin have also created a great deal of interest and their uses are advocated strongly by some writers.

Ligation of the femoral vein has also been received favorably and appears as the most rational method if the object of our treatment is to prevent a fatal pulmonary embolus. I cannot see how mechanically any of the first three methods mentioned could give you any assurance of safety.

It appears that every case of Thrombophlebitis or phlebothrombosus of the lower extremities which develops in the home whether following an obstetrical, surgical or medical condition should be removed by ambulance to a hospital for treatment. Here expert consultation would be useful.

This committee is not in position to decide on the exact treatment which should have been given this case. A well-trained consultant might have advised vein ligation or other treatment. It is quite likely that if this plan had been followed, this fifteen year old woman would not have died from pulmonary embolus.

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PUBLIC HEALTH

I. C. RIGGIN, M.D.,
State Health Commissioner of Virginia

The report of the Bureau of Communicable Diseases of the State Department of Health for July, 1945, as compared with the same month in 1944, and for the period of January through July, 1945, compared with the same period in 1944, follows:

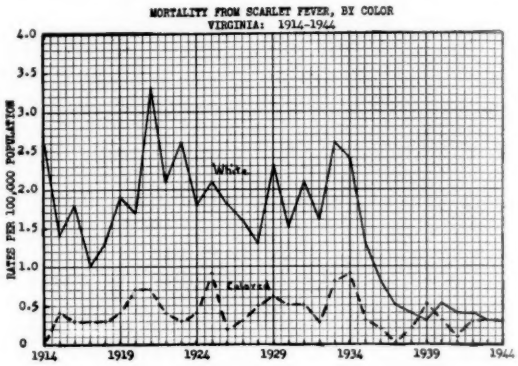
	July 1945	July 1944	Jan.-July 1945	Jan.-July 1944
Typhoid and Paratyphoid Fever	16	15	61	68
Diarrhea and Dysentery	790	1,585	2,373	3,120
Measles	28	315	1,213	16,970
Scarlet Fever	71	77	2,613	1,927
Diphtheria	11	7	144	124
Poliomyelitis	62	125	89	139
Meningitis	13	32	177	436
Undulant Fever	7	3	18	29
Rocky Mountain Spotted Fever	34	21	52	41
Tularemia	6	7	29	35

SCARLET FEVER IN VIRGINIA DURING THE PAST THIRTY YEARS

The mortality rate from scarlet fever in Virginia dropped from 1.8 per 100,000 population in 1914 to 0.3 in 1944—a decrease of 83 per cent. The decline, however, has not been uniform throughout the 30-year period. For the first 20 years, from 1914 to 1934, there was much fluctuation in death rates, with no appreciable upward or downward trend. After 1934 the rate dropped precipitately until in 1937 it reached a new low of 0.3 per 100,000 population. Since 1937 the rates have shown slight variability, coming within a maximum of 0.5 and a minimum of 0.3.

The death rate for the white race was much in excess of the colored until the year 1939, in which year the colored rate exceeded the white. During the past three years there has been little difference in rates between the races. On the Graph below are shown the white and colored rates for the past thirty years.

During the five-year period 1914-1918, an annual



average of 31 white persons and two colored persons died from scarlet fever in the State. During the past five years, an average of 10 white persons and 2 colored died from this cause.

Although scarlet fever is one of the principal communicable diseases of childhood, cases and deaths show a wide range in age distribution. There were 2,969 cases of scarlet fever reported in the State in 1944, in comparison with 1,842 during the previous year. The table below shows cases and deaths by age groups for the past year.

Although case reporting is not considered to be 100 per cent, a very low fatality rate is seen in the State during the past ten years. In 1944 the case-mortality rate was 0.26 per 100. In other words, less than one death occurred from this cause in each 100 cases, or less than three deaths in each 1,000—due apparently to the mild form of the disease existing at present.

CASES AND DEATHS FROM SCARLET FEVER IN THE STATE OF VIRGINIA 1944

	Color	All Ages	Under 1 year	1-4 years	5-9 years	10-14 years	15-19 years	20-39 years	40 years and over	Unknown
CASES	White	2,588	27	463	1,018	481	154	286	25	134
	Colored	147	–	43	50	24	7	20	2	1
	Unknown	234	–	–	–	–	–	–	–	234
DEATHS	White	6	–	–	2	1	1	1	1	–
	Deaths	2		1	–	–	–	–	1	–

MISCELLANEOUS

Constructive Program for Medical Care

AMERICAN MEDICAL ASSOCIATION

This platform was adopted by the Council on Medical Service and Public Relations and the Board of Trustees of the American Medical Association on June 22, 1945

PREAMBLE

The physicians of the United States are interested in extending to all people in all communities the best possible medical care. The Constitution of the United States, the Bill of Rights and the "American Way of Life" are diametrically opposed to regimentation or any form of totalitarianism. According to available evidence in surveys, most of the American people are not interested in testing in the United States experiments in medical care which have already failed in regimented countries.

The physicians of the United States, through the American Medical Association, have stressed repeatedly the necessity for extending to all corners of this great country the availability of aids for diagnosis and treatment, so that dependency will be minimized and independence will be stimulated. American private enterprise has won and is winning the greatest war in the world's history. Private enterprise and initiative manifested through research may conquer cancer, arthritis and other as yet unconquered scourges of humankind. Science, as history well demonstrates, prospers best when free and unshackled.

PROGRAM

The physicians represented by the American Medical Association propose the following constructive program for the extension of improved health and medical care to all the people:

1. Sustained production leading to better living conditions with improved housing, nutrition and sanitation which are fundamental to good health; we support progressive action toward achieving these objectives:

2. An extended program of disease prevention with the development or extension of organizations for public health service so that every part of our country will have such service, as rapidly as adequate personnel can be trained.

3. Increased hospitalization insurance on a voluntary basis.

4. The development in or extension to all localities of voluntary sickness insurance plans and provision for the extension of these plans to the needy under the principles already established by the American Medical Association.

5. The provision of hospitalization and medical care to the indigent by local authorities under voluntary hospital and sickness insurance plans.

6. A survey of each state by qualified individuals and agencies to establish the need for additional medical care.

7. Federal aid to states where definite need is demonstrated, to be administered by the proper local agencies of the states involved with the help and advice of the medical profession.

8. Extension of information on these plans to all the people with recognition that such voluntary programs need not involve increased taxation.

9. A continuous survey of all voluntary plans for hospitalization and illness to determine their adequacy in meeting needs and maintaining continuous improvement in quality of medical service.

10. Discharge of physicians from the armed services as rapidly as is consistent with the war effort in order to facilitate redistribution and relocation of physicians in areas needing physicians.

11. Increased availability of medical education to young men and women to provide a greater number of physicians for rural areas.

12. Postponement of consideration of revolutionary changes while 60,000 medical men are in the service voluntarily and while 12,000,000 men and women are in uniform to preserve the American democratic system of government.

13. Adoption of federal legislation to provide for adjustments in draft regulation which will permit students to prepare for and continue the study of medicine.

14. Study of postwar medical personnel requirements with special reference to the needs of the veterans' hospitals, the regular army, navy and United States Public Health Service.

XUM

Benzyl Benzoate Effective in Pruritus Ani.

Pruritus ani has long been one of the conditions most difficult in which to obtain results. Twenty-five per cent solution of benzyl benzoate locally applied has brought as much, if not more, relief to pruritus ani than any other drug tried. One advantage of the benzyl benzoate solution is that it is not greasy and is easily applied. Most anti-pruritics stain the clothes badly, and a non-staining and easily applied drug is more apt to solicit the patient's cooperation.

The use of this solution in generalized pruritus is established and its success in generalized pruritus prompted its use in pruritus ani. Locally applied three times daily, the results obtained in two cases of moderate to severe symptoms brought as good results as x-ray therapy.

This is written in the hope that pruritus ani sufferers can be assured of another drug to help alleviate the distressing symptoms—burning, itching, and associated insomnia.

A. J. RUSSO, M.D.,
Salem, Virginia.

WOMAN'S AUXILIARY
to the
MEDICAL SOCIETY OF VIRGINIA

President—MRS. PAUL C. PEARSON, Aylett
President-Elect—MRS. P. M. CHICHESTER, Abingdon
Recording Secretary—MRS. C. C. SMITH, Norfolk
Corresponding Secretary—MRS. HAWES CAMPBELL, Turpin
Treasurer—MRS. REUBEN F. SIMMS, Richmond
Chairman, Press and Publicity—MRS. A. G. SHETTER, Richmond.

Annual Meeting.

It has been decided that the annual meeting of the Auxiliary to Medical Society of Virginia shall be held in Richmond, at the Academy of Medicine Building, Tuesday, October 16, at 11:00 A. M.

Since present conditions make it impossible for us to meet at the same time and place as the Medical Society, and since they are not having a full meeting, the Advisory Council has approved the plan for the Auxiliary to hold a full meeting, as usual, at a different time and place.

This will not be a meeting composed of only Board members and delegates, but the entire membership will be welcomed. All necessary business will be transacted, including the election of officers. Each Auxiliary President and Chairman is to have her report ready, and mailed according to instructions which will be sent each group.

We regret not being able to meet with the doctors, but since circumstances over which we have no control make this impossible, every effort will be made to fill this meeting with interest. It can be held as a regular rather than a special meeting because our membership is smaller, and we know that our number to attend from out of the city will not exceed the O.D.T. requirements.

MRS. PAUL PEARSON, *President.*

The Woman's Auxiliary to The Northampton-Accomac Medical Societies

Enjoyed their second annual picnic outing as the guests of Mrs. W. L. Cosby at her attractive cottage "Funfrus" at Silver Beach, on July 10. A delicious luncheon was followed by a social period and swimming.

Eighteen members and nine guests enjoyed Mrs. Cosby's hospitality.

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(Founded by Landon B. Edwards, M. D., April, 1874)

WYNDHAM B. BLANTON, M. D.,
Editor Emeritus

M. PIERCE RUCKER, M. D.,
Editor

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VOL. 72 SEPTEMBER, 1945 No. 9

A State-wide Gonococcus Service

LABORATORY diagnosis of gonorrhoea falls far short of the exactness that doctors and the public generally expect of laboratory methods. The time-honored smear has proven so inadequate that many clinicians have given up smears entirely and rely upon culture methods for diganosis. The technical difficulties of the culture method in the past have limited its use to large hospitals and health centers where the specimens can be taken to the laboratory promptly. Bergsma and Stein of the Bureau of Venereal Disease Control of the New Jersey State Department of Health developed a method, using horse plasma-hemoglobin agar slants, by which 156 positive cultures were obtained from mailed specimens taken from patients whose concurrently prepared smears yielded only 71 positives. On the basis of this work the New Jersey State Health Department has set up an experimental program on a state-wide scale. The Department has established central laboratories and culture stations. The laboratories prepare the media and assemble the mailing outfits. The Culture stations distribute the containers, receive the specimens, incubate them for 18 to 24 hours at 37° C. and forward them to the central laboratories. Here the tubes are separated into three groups: (1) no growth, (2) moderate growth with isolated colonies, and (3) overgrowth. The first group is incubated for another 24 hours. If there be then any growth the tubes are treated as either group 2 or 3 as the case may be. The tubes of group 2 are inspected for colonies with a morphology typical of the gonococcus. These are subcultured and are also treated with oxidase reagent and are examined microscopically. The oxidase reagent indicates likely colonies when there are none that are morphologically characteristic. The tubes of group 3 are treated with oxidase reagent and in this way the laboratory worker can "fish" likely material for subculture. For a positive report the subcultures must possess the colonial morphology typical of the gonococcus, be oxidase-positive, contain gram-negative diplococci, and ferment only dextrose when inoculated into sugar media.

The experiment is evidently a success for in two years the volume of mailed specimens has increased to a rate of about 13,000 per year. Of 616 positive specimens

only 86 (14 per cent) were not detected by the mailed culture method, whereas 299 (48.5 per cent) were missed by the smear examinations. New Jersey is to be congratulated upon inaugurating a much needed service.

The Social Security Amendments of 1945

THE bill, S 1050, with the above title which Senator Wagner introduced in the Senate on May 24th and which Representative Dingell introduced in the House under the number H.R. 3293, is 185 pages in length. The editor of the *New York State Journal of Medicine* describes the new Wagner-Murray-Dingell bill epigramatically as follows: "The new bill seems to us to be just as arbitrary, fully as dangerous, and far more expensive than previous versions. We do not believe that it would be acceptable to the membership of the Medical Society of the State of New York either as physicians whom it would regiment or as citizens whom it would bankrupt." Senator Wagner claims to have benefited greatly in formulating his bill by the constructive advice and suggestions of practicing physicians. If this is the reaction of the profession in Senator Wagner's own state, we wonder where he went for his advice.

The Gas Bacillus in Obstetrics

THIS little bit of almost undifferentiated protoplasm, so small that it takes one billion of them to make a mass that can be seen by the naked eye, goes by many aliases: Achalme's bacillus, Bacillus enteritidis sporogenes, Bacillus perfringens, Bacillus phlegmonis emphysematosae, Bacillus welchii, Clostridium aerogenes capsulatum and Vallon-Zaber bacillus. Dr. William H. Welch, who discovered the organism, gave it the name, Bacillus aerogenes capsulatum. He used to say that the name was descriptive, although it violated the canon of good nomenclature. It is a normal inhabitant of the intestinal tract of man and is found in the vagina of 6 to 8 per cent of pregnant women. It is anaerobic and bears spores and is as hard to kill as a German or a Jap. Its chief function in life is to produce gas, but on occasion it may produce deadly toxins, capable of producing jaundice, hemolysis and circulatory collapse.

Like the Germans and the Japs, the gas bacillus may live for generations without doing any harm and then for some unknown reason, it starts on a rampage of death and destruction. An army of gas bacilli may hide on a pubic hair, where it can be more dangerous than a Bengal tiger hiding in the bamboo. We have seen two serious post-abortal infections within the past year. It has been known to kill in 16 hours. One-half of those infected die within four days.

The rapidity with which bacteria multiply under favorable circumstances is truly astounding. Mathematically inclined persons figure that a single cell will produce 64,000 in 8 hours and some 1,000,000,000 in 15 hours. In 35 hours the progeny of this single cell will occupy a space of 1,000 cubic metres. Just how much gas an individual gas bacillus can make has never been calculated, so far as we know. However, in the aggregate, it is enormous. Within a few hours after death from gas bacillus infection, a body may double its size. A question we would like to ask the experts is: If a woman goes to an abortionist, how many generations of the Clostridium welchii will it take to make her as big as a balloon and as dead as a doornail?

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PRESIDENT'S MESSAGE

Veterans Service for Medical Officers Sponsored by Medical Society of Virginia

AT a recent meeting of the Department of Clinical and Medical Education of the Medical Society of Virginia it was unanimously approved that a determination be made of the post-graduate educational needs of returning medical officers, from Virginia, who are now or have been in military service. To direct this survey, the Committee for the State Society has appointed Dr. Andrew D. Hart, Jr., a member of the University of Virginia Medical Faculty and a former officer of the Medical College of Virginia's 45th General Hospital. An attempt is being made to communicate with each medical officer through the accompanying letter and questionnaire, which have been mailed to doctors listed by the State's Selective Service Office as comprising the quota from Virginia. Owing to recent changes in military addresses some delay and misdirection is unavoidable. The Medical Society will be grateful for information as to changes of address of Virginia doctors in the armed forces.

H. B. MULHOLLAND, M.D., *President.*

TO MEDICAL OFFICERS FROM THE STATE OF VIRGINIA:

At a recent meeting of the Department of Clinical and Medical Education of the Medical Society of Virginia, it was unanimously approved that a determination be made of the post-graduate educational needs of returning medical officers, from Virginia, who are now or have been in military service. The State Medical Society will sponsor a program which, through this Office, attempts to:

1. Determine the type, extent and field of post-graduate education desired.
2. Provide a central office of information for returning medical officers, where questions as to post-graduate study and placement may be given attention.
3. Assist in every way practical your return to civilian status.

A copy of this letter and attached questionnaire is being sent to each medical officer from the State, at the latest available military address, or to the obtainable home address. Your cooperation in responding promptly, whether you desire help or not, is most necessary to the success of this survey. We realize that many doctors may not wish assistance in their plans for the future, but please return the questionnaire anyway; we need your reply.

It is estimated roughly that of 1,000 doctors from Virginia now in the Service, from 300 to 500 will want some kind of training or review before returning to civilian practice or work elsewhere. From personal experience at home and overseas, and from many conversations with medical officers, I am convinced that each of us feels an urgent need for some way of catching up on the years we have missed.

It is this Department's purpose not only to survey your post-graduate needs and make plans for their fulfillment, but to furnish an individual and personal service. Therefore, in addition to completing the questionnaire, I trust you will feel free to write me a personal letter in regard to any way that this office can help you now and on your discharge from the Service. Any comments or suggestions will be appreciated. I can assure you that the Medical Society of Virginia is sensitive to your needs, proud of your record, and aware of its obligation to render you practical assistance in every way possible.

ANDREW D. HART, JR., M.D.,
Lt. Colonel, MC, AUS, Ret.

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THE MEDICAL SOCIETY OF VIRGINIA

Department of Clinical and Medical Education

VETERANS SERVICE QUESTIONNAIRE

Name _____ Rank _____ Age _____ Years Service _____

Organization _____ Address _____

Home Address _____

Year of Graduation in Medicine _____ School _____

1. Residence, location, and type of practice prior to entry into Service _____

_____

General Practice? _____ Specialty? _____

Residency? (type) _____ Internship? _____

State Position? _____ Federal Position? _____

Industrial Med.? _____ Group Practice? _____

Teaching (part time)? _____ Other? _____

2. Do you desire or intend to remain in the Army, Navy, Public Health Service or Veterans Administration after the war? _____ If yes, underline which one.

3. Do you desire or intend to return to practice in your previous location? _____

Elsewhere? _____ If elsewhere, state type and size of locality desired _____

_____

4. Do you desire or intend to return to the same type of practice? _____

If a change in type of practice is contemplated, please indicate _____

_____

5. Do you desire post-graduate work after leaving the Service? Yes _____ No _____

If yes, please indicate what type:

Refresher Courses? _____ Fellowship in Special Subject? _____

Residency? _____ Rotating Internship? _____

Assistantship? _____ Other? _____

6. Please specify the particular *field* in which above work is desired, i.e., Medicine, Surgery, Orthopedics, Psychiatry, Ophthalmology, etc. _____

_____

7. Please estimate, if possible, the length of time you will be willing to devote to post-graduate study. _____

8. Suggestions or comments _____

_____

_____

_____

Please reply to:

Dr. Andrew D. Hart, Jr.
Box 1725, University Station
Charlottesville, Virginia

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Societies

The Mid-Tidewater Medical Society

Held its regular quarterly meeting at Urbanna on July 24, with Dr. W. S. Cox presiding. Resolutions of respect were adopted for Dr. W. P. Jones, a past president of the Society. A schedule of fees was discussed and adopted, and delegates to the meeting of the House of Delegates of the State Society were named.

Lt. Col. Charles M. Caravati, who is located at the Woodrow Wilson Hospital in Staunton, addressed the Society on "Tropical Diseases Likely to be Seen by the General Practitioner on Soldiers Returned from the Tropical War Fronts".

The Society will meet again at Urbanna on October 9.

The Patrick-Henry Medical Society

Held its regular quarterly meeting in Martinsville on July 13. At this time, delegates were named to the Roanoke meeting of the House of Delegates of the Medical Society of Virginia. After the business session, Dr. Everett O. Jeffreys, assistant professor of Surgery in charge of Neuro-Surgery at the Bowman-Gray School of Medicine in Winston-Salem, N. C., gave an interesting illustrated lecture on Cranio-Cerebral Trauma.

Dr. E. N. Shockley of Bassett and Dr. T. Henry Dickerson of Martinsville are president and secretary, respectively.

Augusta County Medical Society.

The following officers were elected at a meeting of this Society held on August 1 in Staunton: President John H. Guss, Staunton; and vice-presidents, Drs. George E. Stone, Staunton; F. P. Floyd and A. M. McLaughlin, Waynesboro.

The Buchanan-Dickenson County Medical Society

Held a supper meeting at the Grundy Hospital on July 18. Delegates and alternates to the meeting of the House of Delegates of the State Society were appointed, following which Mr. Farnsworth of Roanoke showed a color film by Abbott and Company on Blood and Plasma Bank for Small Hospitals.

T. C. SUTHERLAND, *Secretary.*

Wise County Medical Society.

This Society met on August 10 as dinner guests of the secretary, Dr. T. J. Tudor, Norton. There was an attendance of twenty-three. Drs. Givens, Barton and Tudor led a discussion on Poliomyelitis, and Dr. F. D. Winner spoke on Prostatic Disease and Hip Joint Injuries and demonstrated newer surgical instruments. He then showed color films of some surgical cases and scenery in Virginia and Pennsylvania. Dr. C. L. Harshbarger is President of this Society.

News

FULL MEETING OF HOUSE OF DELEGATES CALLED

In view of the fact that the Office of Defense Transportation has changed restrictions, it is now possible to hold a convention with an attendance of 125 to 150. Dr. Mulholland, President of the Medical Society of Virginia, is, therefore, asking the component societies to elect their full number of delegates for a meeting of the House of Delegates in Roanoke, October 22 and 23. Chairmen of Committees are also asked to arrange to attend.

There will be no general meeting this year even if later restrictions on conventions are released. It would be impossible at this time to work up a satisfactory program and to obtain guest speakers.

All component societies are urged to elect and send their delegates to Roanoke. Reservations should be made immediately at the Hotel Roanoke.

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Virginia State Board of Medical Examiners.

Applicants successfully passing the Board at the June 1945 meeting are:

Miller Shannon Allen, Jr., New York City.
Melvin Gustavus Alper, Philadelphia, Pa.
Marshall David Baxter, Charlottesville.
Lewis F. Bell, Charlottesville.
William Earl Bloomer, Atlanta, Ga.
Robert Stewart Boyd, Charlottesville.
Franklin Talmadge Buchanan, Charlottesville.
Ann Butterworth, Charlottesville.
Samuel Henley Carter, Charlottesville.
Charles Lucian Crockett, Jr., Charlottesville.
Wilber Russell Ellis, Jr., Wakefield.
Ponciano I. Ferraraccio, Bluefield, W. Va.
William Cary Fleming, Charlottesville.
Francis Wilbur Fitzhugh, Jr., Brooklyn, N. Y.
Charles Irving Fuller, Jr., Norton.
Martin Edward Gallagher, Norfolk.
George Benjamin Garis, Nashville, Tenn.
Louis Sparkman Graham, Jr , Pittsburgh, Pa.
Herbert Durant Gullick, Greenville, S. C.
John Pinckney Harloe, Charlottesville.
Myers H. Hicks, Florence, S. C.
Anne Liese Lee, Norfolk.
Herbert M. Levitt, Petersburg.
David Benjamin Levy, Suffolk.
William Dulaney Lewis, Jr., Richmond.
Frank Gold Lindsay, Jr., Portsmouth.
Leonidas R. Littleton, Jr., Arlington.
Stephen Brooks Longley, Charlottesville.
David Smythe McKee, Charlottesville.
Laurance Samuel Miller, Bridgewater.
William R. Nelson, Nashville, Tenn.
Mason Romaine, III, Petersburg.
Milton Segal, Pittsburgh, Pa.
George Ward Shannon, Charlottesville.
Donald Shotton, Charlottesville.
Acors William Thompson, Charlottesville.
Frederick Victor Vance, Jr., Bristol, Tenn.
Edwin Booth Vaden, Gretna.
Evelyn Clark Wade, Roanoke.

The following were granted license through reciprocity:

Gordon H. Anderson, Virginia Beach.
Rudolph Frank Antoncic, Pulaski.
Clifford Edward Bagley, Arlington.
Andrew W. E. Bassett, III, (Col.), Hampton.
Dulcie Blunden-Morris, Toloma Park, Md.
Joseph Bogan, Washington, D. C.
Ralph Woods Bohnsack, Pulaski.
William Christian Calloway (Col.), St. Louis, Mo.
Louis Bernard Castell, Arlington.
Katharine A. Chapman, Kensington, Md.
Addison Bertram Clifford, Arlington.
Hazen Eugene Cole, Washington, D. C.
William J. Cusack, Washington, D. C.
Robert Hoyt Flynn, Jr., Radford.
Alfred W. Glaess, Norfolk.
Henry Frank Glover, Friendsville, Md.
Herbert Hardy Howze, Norton.
Sidney Curtis James (Col.), Durham, N. C.
Delbert Vine Kechele, Richmond.
Manuel Phillip Landman, Forest Hills, L. I., N. Y.
Kasty Charles Latven, Arlington.
Albert E. Laughlin, Harman.
Edward Sharpe Lee (Col.), Portsmouth.
Henry H. Lichtenberg, Washington, D. C.
Edward A. R. Lord (Col.), Petersburg.
Lyle Millan Mason, Washington, D. C.
Agnes Louise McNutt, Washington, D. C.
Grover Lee Moore, Portsmouth.
Henry Simmons Murphy, Washington, D. C.
Stephen W. Nealon, Jr., Washington, D. C.
Frederick William Nueske, Staunton.
Joseph E. Pisano (Osteopath.), Lynchburg.
Ernest Harold Reynolds, Madison, N. C.
LeRoy Robins, Washington, D. C.
Samuel Rogers, Roanoke.
John Rudolph Saunders, Richmond.
Walter Eugene Sharpe, Jr., Roanoke.
Luther Sheldon, Jr., Navy Department, Washington, D. C.
Joseph Washington Stein, Washington, D. C.
Micollius Noel Stow, Arlington.
Hyman Strauss, Brooklyn, N. Y.
Ellis Frank Swarthout, Alexandria.
George Brooks West, Jr., Norfolk.
Dorothy V. Whipple, Washington, D. C.

Doctors in Service.

The following promotions have recently been noted:

Dr. Thomas N. Spessard, Norfolk, to Captain, USNR.

Dr. J. R. Grinels, Richmond, to Lieutenant Colonel, AUS.

Dr. George R. Carpenter, Fairfax, to Major, AUS.

Dr. Joseph B. Jones, Culpeper, to Major, AUS.

Captain Julius Charles Hulcher, MC., son of Dr. and Mrs. J. J. Hulcher, Richmond, has been presented with the Bronze Star Medal for meritorious service as a battalion medical officer of the 83rd Chemical Mortar Battalion in Italy, France and Germany. He is a graduate of the Medical College of Virginia, class of 1941.

Captain Joshua P. Sutherland, MC., has been awarded the Bronze Star Medal and has also received a commendation from General Patch for his medical work in Staumlager IX B. He has recently returned to this country, having been a prisoner of war in Germany, and is now located at Ft. Jackson, S. C.

Medical Society of District of Columbia.

On July 1, Dr. William Earl Clark succeeded to the presidency of this Society. Officers elected at the annual meeting to serve with him are: President-elect, Dr. William P. Herbst, Jr., and vice-presidents, Dr. Fred A. J. Geier and Dorothy S. Jaeger. Dr. William M. Ballinger had acted as president since Dr. James N. Greear, Jr., (Lt. Col., M.C.) was ordered overseas several months ago.

Dr. J. Marion Bryant,

Until recently assistant resident in internal medicine at the University of Virginia, is now instructor in internal medicine at the University of Michigan Hospital, Ann Arbor.

Dr. P. L. Hill

Has been appointed to fill a vacancy on the Council of Colonial Heights, suburb of Petersburg. Dr. Hill has made his home in Colonial Heights about twenty years and has been active in civic and social affairs.

Dr. E. G. Gill,

Roanoke, was recently appointed chairman of the Board of Health of that City. Dr. W. R. Whitman was appointed vice-chairman.

The American Board of Ophthalmology

Announces that due to transportation difficulties the examinations of the Board, originally scheduled for October 1945 in Chicago, have been postponed to January 18 to 22, 1946.

University of Virginia, Department of Medicine.

The sum of $10,000 has been provided in the will of the late Mrs. Sallie B. Twyman as a memorial to her late husband for the establishment in the Medical School of the Frederick W. Twyman Fund, the income to be applied for research in cardiovascular disease under the direction of the Department of Internal Medicine.

Dr. R. D. Garcin, Sr.,

Has been named chairman of the Richmond Public Library Board, succeeding the late Dr. Beverley R. Tucker.

Dr. W. A. Carr,

Formerly of Harman, is now located in War, West Virginia.

The Gill Memorial Eye, Ear and Throat Hospital,

Roanoke, announces that the Nineteenth Annual Spring Graduate Course will be held at the Hospital on April 1-6, 1946.

Married.

Lt. Fordyce Cox Stone, USNR., Binghampton, N. Y., and Dr. Catherine Bird Hoover, Richmond, August 6. She is a graduate of the Medical College of Virginia, class of 1945.

Major Thomas Whitehead Murrell, Jr., MC., AUS., Richmond, and Miss Jane Nelson Goolrick, Fredericksburg, August 2. Major Murrell graduated in Medicine from the University of Virginia in 1940.

Dr. Mervin H. Mitchell

Has resigned his position with the Norfolk and Western Railway Company in Roanoke and is now engaged in general practice in Albany, Ohio.

The Seaboard Medical Association

Will hold its Golden Anniversary Meeting at the Cavalier Hotel, Virginia Beach, December 4-6, under the presidency of Dr. A. A. Burke, Norfolk. Dr. C. P. Jones, Newport News, is secretary-treasurer of the Association.

$34,000 in War Bonds as Prizes

For the best art works by physicians, memorializing the medical profession's "Courage and Devotion Beyond the Call of Duty" (in war and in peace).

This prize contest is open to any physician member of the American Physicians Art Association, including medical officers in the armed forces of the United States and Canada.

Full information available on request of the sponsor, Dr. Francis H. Redewill, Flood Bldg., San Francisco, Cal., or Mead Johnson & Co., Evansville, Ind.

Established Hospital for Lease.

A Sanitorium for nervous, mental, alcoholic and drug cases doing an excellent business to a reputable physician or medical group. Dr. E. W. Stokes, 923 Cherokee Road, Louisville 4, Kentucky. (*Adv.*)

Physician Wanted.

Physician for industrial dispensary in South. Must be graduate Class A School. Please write details and give references in first letter. Expenses of

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interview will be arranged for satisfactory applicants. Write to Medical Director, Box 590, Knoxville 5, Tennessee. (*Adv.*)

New Books.

Recent additions to the Library of the Medical College of Virginia include the following, which are available to our readers under usual library rules:

Bailey and Bishop—Notable names in medicine & surgery.
Bargen—The modern management of colitis.
Barton—Symptom diagnosis, regional and general.
Baruch—Parents can be people.
Boyd—An introduction to medical science.
Brous—Bibliography lead poisoning.
Bucy—The precentral motor cortex.
Cabot & Adams—Physical diagnosis. 13th ed. 1942.
Campbell—Dissection outline and index for students.
Cattell, ed.—Ageing and degenerative diseases.
Clayton—The theory of emulsions and emulsification.
Cohen—Coming home.
Cole—History of comparative anatomy from Aristotle to the 18th century.
Corner—Diseases of the male generative organs.
De Kruif—The male hormone.
Deming—General chemistry.
Dodds & Dickens—The chemical and physiological properties of the internal secretions.
Dubos—The bacterial cell.
Field—Freedom is more than a word.
Foulk—Introductory notes on quantitative chemical analysis.
French—An index of differential diagnosis of main symptoms. 6th ed. 1945.
Fuller—The qualitative analysis of medicinal preparations.
Griffith—Recent remedies.
Grinker—Men under stress.
The Harvey Lectures. 1916-1917.
Hill—A brief laboratory guide for qualitative analysis.
Humbert—Virginia, economic and civic.
Jeans—The universe around us.
Kester—Accounting theory and practice.
Klarmann—The crux of pastoral medicine.
Lennon—Victoria through the looking glass.
Leonardo—History of gynecology.
Levinson—Pediatric nursing.
Lucas—The book of prescriptions.
Lusk—The science and art of midwifery.
McCorkle—Survey of physical science.
Mitchell—The Red City (novel).
Modern medicine annual—1944.
Moseley—Shoulder lesions.
Murray—Standards and tests for reagent chemicals.
The 1943 yearbook of general medicine.
Nizer—What to do with Germany.
Ostwald—Outline of general chemistry.
Owen—The surgical diseases of children.
Pinner—Pulmonary tuberculosis in the adult.

Obituaries

Dr. Emmett Wood Meade,

Castlewood, died July 28. He was eighty-three years of age and graduated from the Medical College of Virginia in 1892. Dr. Meade has practiced in Russell County for more than forty-five years. He had been a member of the Medical Society of Virginia since 1904.

Dr. Robert John Styers,

Prominent physician of Amelia, died July 24. He was a native of North Carolina and sixty years of age. Dr. Styers graduated from the former University College of Medicine, Richmond, in 1911. He had practiced in Amelia County for more than thirty years and served as a Captain in the Medical Corps during World War I. Dr. Styers had been a member of the Medical Society of Virginia for twenty-nine years. Two sisters and a brother survive him.

Resolutions on Dr. Robert E. Whitehead.

WHEREAS, in His loving wisdom, it has pleased Almighty God to remove from our midst Doctor Robert E. Whitehead of Princess Anne County, the senior member of our Medical Society and for forty-eight years, even up until the time of his death, an outstanding physician of our community.

BE IT RESOLVED: First: This community has lost a most valuable and greatly beloved citizen as well as a splendid friend, and an able and skillful doctor, who upon entering a sick room inspired not only the patient but also the family with hope and confidence.

Second: The medical profession has lost one of its most highly esteemed members and deeply regrets the passing of such a willing and able consultant whose genial spirit gave never ending joy to all who came in contact with him.

Third: Be it further resolved that a copy of these resolutions be sent to Doctor Whitehead's family, to the VIRGINIA MEDICAL MONTHLY and spread on the minutes of the Princess Anne Medical Society.

I. L. HANCOCK
R. W. WOODHOUSE, JR.

Dr. Fauntleroy Flinn,

Prominent radiologist of Decatur, Illinois, died July 26. He was a graduate of the Medical College of Virginia, class of 1914. Dr. Flinn is survived by his wife and daughter and also five brothers, all of Alberta, Virginia.